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THIS WEEK'S NEWS

THE GRANGE, FULHAM, is to be preserved, the Minister of Housing has decided. p. 408

IMPROVED STREET-LIGHT DESIGNS have been prepared by manufacturers after consultation with CoID. p. 409

PRESTRESSED CONCRETE WORK on Bank of England printing works at Debden is described and illustrated. p. 418

THE POINT THAT PROBLEMS OF TENDERING PROCEDURE are exercising the building industry in many countries is made in an article by M. A-P. Ducret. p. 425

UNIVERSITY COLLEGE, LONDON, have appealed against a proposed restriction on the height of a new building in Gower-street. p. 428

197,854 *HOUSES were built in the first seven months of* 1954. p. 433

PLANS FOR MORE HOUSES are being laid by the New Zealand Government. p. 440

THE SMOKE MENACE

THE menace of air pollution to life and property is the theme of two recent publications.* The first, a report by a Ministry of Health Committee appointed by the Minister early in 1953 to examine the facts about the fog that blanketed London for four days in December, 1952, while claiming that to the majority of normal healthy individuals the fog was "little more than a nuisance," nevertheless admits that it was responsible for the death of nearly 4,000 persons, albeit they were already suffering some form of ill-health. The report stresses "the increase in sulphur dioxide in the atmosphere" during the fog, the harmful effects of which were probably aggravated by "sulphur trioxide dissolved as sulphuric acid in fog droplets." It is not very encouraging to note that many points remain "on which factual information was lacking, because the evidence could only be collected at the time of the fog," nor that the regrettable recurrence of a similar fog is apparently indispensable to the making of further "necessary investigations."

The PEP report provides a useful summary of the history of air pollution in this country from the year 1306, when a Royal Proclamation prohibited artificers from using coal in their furnaces and ordered a return to wood or charcoal. Elizabeth I is said to have been "greved and anoyed" by smoke from Westminster breweries; and later, as the nuisance grew, John Evelyn submitted to Charles II his dissertation entitled, "Fumifugium: or the Smoake of London Dissipated," which, of course, it never was. Notwithstanding legislation against it during the last and the present century, the smoke nuisance has steadily increased, and, in July last year, what is known as the Beaver Committee was set up to re-examine the whole problem of air pollution. As this Committee stated in its interim report, "The causes and remedies of pollution by smoke are known; the problem is one of practicability and economics, and of the education of the community."

Smoke is tersely defined in the PEP report as "particles of carbonaceous soot and mineral ash, droplets of tar and oily matter, and corrosive acid vapours. The mixture is blackening, adhesive, abrasive and corrosive." Some 7.7 million tons of this pollution is produced per annum. The largest single source of smoke, and 45 per cent. of the total, is the domestic chimney. General industry comes next, followed by the railways, which are responsible for half as much smoke as industry. Electricity works, using rather more than half as much coal as industry, contribute an equal amount of grit.

Much, of course, has been done, mainly by the propaganda of the National Smoke Abatement Society, to bring home to the public the dangers of smoke to health and property; and in the field of practical reform we have seen the introduction of Smokeless Zones (some forty authorities, including the City of London, have now taken powers to enforce them), while smoke-consuming and other improved apparatus has been adopted in power stations and elsewhere, and more efficient forms of the domestic firegrate have been extensively introduced, together with smokeless solid fuels. There has been a great increase, too, in the use of gas and electricity for industrial and domestic purposes.

Nevertheless, the total monetary cost of smoke is estimated at £150 millions a year. We cannot afford to allow this to go on. As the National Smoke Abatement Society has stated, the cost of abolishing the pollution would not be likely to be more than a fraction of the cost of continuing to fail to take any action against it. The ultimate solution is undoubtedly atomic energy, but that, presumably, is an ideal of the distant future. In the meantime, we shall have to rely largely on more effective legislation for a progressive abatement of the nuisance. Sir Hugh Beaver, we note, is to be the principal speaker at the National Smoke Abatement Society's annual conference to be held at Scarborough from September 22 to 24, when he may be expected to lift the curtain a little on the activities of the Government committee on air pollution over which he presides. The committee's final report is expected in the autumn; its recommendations are awaited with lively interest.

* Mortality and Morbidity during the London Fog of 1952. MOH. Stationery Office. Price 2/6.
The Menace of Air Pollution. PEP Broadsheet. Price 2s.

NOTES & NEWS

KIDBROOKE ON SHOW

MUCH has already been heard about the LCC's first comprehensive school—Kidbrooke, Greenwich—and it has been at least adequately covered both architecturally (including in this paper), educationally and no doubt sociologically elsewhere, writes Basil Marriott. At the time of Kidbrooke's being taken into service, it therefore remains only to round this off by mentioning the small Building Centre Exhibition (until the end of the month) as being itself a footnote to what has already been published.

The show consists of plans, photographs of the exterior and interiors, and of the original model, together with specimens of the furniture and fabrics selected. Architecturally, it is perhaps less than fair to Messrs. Slater, Uren and Pike that we are now so accustomed to first-rate school designs that theirs may be taken for granted; but, by way of consolation, Kidbrooke is bound to be regarded as a notable addition to a branch of contemporary architecture in which we have become pre-eminent, apart from its significance as an educational experiment.

The school gives an impression of permanency which comes as quite a shock after so much improvisation in the post-war-panic years, and perhaps of rather less experimentation in its furnishing and equipment than we have come to expect. The latter, judged by the specimens, lead the young very gently into the jungle of contemporary design, where nature is apt to be red in tooth and claw as exemplified by the designing-women writers in the home-making magazines who compete to dictate taste.

As "what teacher says" tends, I believe, to stick longer in the minds of girls than boys, I am all for a fairly painless indoctrination of the female young in the contemporary idiom, for all our sakes.

EMBROIDERED PANELS

THE CRAFTS CENTRE's latest exhibition (very much up the architect and interior designer's street, not to mention their clients), is of embroidered panels by Constance Howard, framed as decorations. These are "pictures" in their own right (writes Basil Marriott), and the avoidance of the word is only necessary because, though many pictures are ultimately "decorations," some easel-painters tend to overlook or resent the fact. Needlework pictures seem the perfect decoration for the small, contemporary interior, being visible in one eyefull at close quarters, and having a textural interest lacking in some graphic arts and reproductions of them. Much of the charm is due to carrying through a calculated effect in colour and texture of mount, and in framing. I particularly liked "The Visitors" for its gay, shocking-pink and mustard-yellow colour; the splendidly Bayeux-like "Lord and Lady" with sequin enrichment; "Fruit Eaters" (a little suggesting Marie Laurençin); and "The Redhead," proving again that redheads ought to wear red and not so easily settle for obvious green. The exhibition is open at 16-17, Hay Hill, W1, until September 25 (10–5 p.m., Saturdays, 10–12.30 p.m.).

THREE EXHIBITIONS

THIS AUTUMN, three special exhibitions will be on view at the LCC's Geffrye Museum, Kingsland-road, Shoreditch. The first is of decorative woven textiles, which illustrates the history of decorative weaving from the 1st century AD to the present day. This is on view until September 23.

The second, European glass, will illustrate Roman, Venetian and German glass, engraved, painted and coloured glass, English and Irish lead glass, and modern glass. This will be held from September 28 to October 24. These two exhibitions are being circulated by the Victoria and Albert Museum.

The third, Cézanne reproductions (circulated by the Arts Council of Great Britain) will be on view from October 26 to November 6. The museum is open on weekdays (except Mondays) from 10 a.m. to 5 p.m. and on Sundays from 2 to 5 p.m. The nearest stations are Old Street and Liverpool Street.

QUEEN TO OPEN BURY HALL

DURING the Royal visit to Lancashire next month the Queen will open the new Town Hall at Bury on October 22. The design of this building (which was won in open competition in 1936 by Mr. Reginald Edmonds, FRIBA) has been carried out by Messrs. Jackson and Edmonds, FF.RIBA, of Birmingham.

ST. CLEMENT DANES

WORK is expected to start at the end of this year on the restoration of St. Clement Danes, WC, which the Royal Air Force are to take over as their own church. Plans have been approved by the Royal Fine Art Commission and, in principle, by the War Damage Commission, who will bear most of the cost of rebuilding.

The architect for the restoration is Mr. W. A. S. Lloyd, MBE, MA, FRIBA, of the firm of W. Curtis Green, RA, Son and Lloyd. It is understood that the intention is to restore the church as it was when Sir Christopher Wren had finished it in 1681, and James Gibbs, his pupil, had added the steeple in 1719.

The War Damage Commission have agreed to meet the cost of the plasterwork in the chancel but not—up to now—that of replastering the nave, although in the architect's view the plasterwork here was one of the fundamental features of the church. Permission has been given for many coffins to be removed from the crypt, which will then become a small chapel. The restoration is likely to take two years to complete.

THE GRANGE, FULHAM

IT has been decided by the Minister of Housing and Local Government to preserve The Grange, an early-eighteenth-century house in Fulham, London, on account of its literary and artistic associations. Samuel Richardson wrote *Clarissa* and other novels there. Burne-Jones lived in The Grange for 30 years, and Ruskin was a frequent visitor to the house.

Captain E. H. T. Broadwood, chairman of the piano firm and Master of the Musicians' Company, has offered to buy the house with a small strip of land behind it. He would use it as a private residence. Fulham council, who had proposed to build 24 flats on the site, would be able to build on the remaining part of the garden.

LMBA LUNCHEON

THE Minister of Housing and Local Government, Mr. Harold Macmillan, and the Minister of Works, Sir David Eccles, are to attend the LMBA luncheon to the Lord Mayor at the Savoy Hotel on September 28.

MEMORIAL TO THE PRESS

A SMALL wall memorial is shortly to be unveiled close to the entrance to Poets' Corner at Westminster Abbey. It will bear an inscription referring to the establishment by Caxton of the first printing press and to the contribution made by the Press generally in connection with the Abbey Appeal Fund.

PROFESSIONAL ANNOUNCEMENT

MESSRS. A. E. THORNTON-FIRKIN AND PARTNERS, quantity surveyors, have removed to new offices at Masons Chambers, Low Pavement, Chesterfield (Tel.: Chesterfield 7021). They will be pleased to receive trade catalogues.

COMING EVENTS

SATURDAY, SEPTEMBER 11

ECCLESIOLOGICAL SOCIETY.—Visit to St. Alphege Parish Church, Greenwich, and St. Mary Star of the Sea RC Church, Croom's Hill, Greenwich. 3 p.m. at St. Alphege.

BUILDING SURVEYORS' INSTITUTE.—General meeting (members only) to discuss future plans. At Royal Sanitary Institute, 90, Buckingham Palace-road, SW1. 2.15 p.m.

MONDAY, SEPTEMBER 13

INSTITUTE OF QUANTITY SURVEYORS.—Talk and discussion on "The Standard Form of Contracts," by Mr. Michael Chavasse, barrister-at-law. At Caxton Hall, Westminster, SW1. 6.30 p.m.

TUESDAY, SEPTEMBER 14

INSTITUTION OF HEATING AND VENTILATING ENGINEERS.—"Current American Practice in Heating, Ventilating and Air Conditioning," by Mr. John K. M. Pryke. 1, Birdcage-walk, Westminster. 6 p.m.

GAUGE AND TOOL MAKERS' ASSOCIATION.—Lunch and AGM. Savoy Hotel, Strand. 1 p.m.

THURSDAY, SEPTEMBER 16

INSTITUTE OF HOUSING.—Twenty-third annual conference. The Pavilion, Torquay. 10 a.m. Continuing until September 18.

FRIDAY, SEPTEMBER 17

INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS (HOME COUNTIES BRANCH).—"Members only" lunch. Connaught Rooms, Great Queen-street, WC2. 1 p.m.

BUILDING SURVEYORS' INSTITUTE (WALES REGION).—"An Introduction to Prestressed Concrete," by Mr. R. C. Blyth, MA, AMICE, MIStructE. South Wales Institute of Engineers, Park-place, Cardiff. 7.30 p.m.

FROM "THE BUILDER" OF 1854

Saturday, September 9, 1854

PROGRESS OF MELBOURNE.—Labour is still very high at Melbourne. Bricklayers and masons are obtaining from 30s. to 35s. a day; carpenters, 25s.; plasterers, 40s.! "If I wanted my rooms lathed and plastered," my friend writes, "they would cost me from 8s. to 10s. a yard—a fearful price." Rents are enormous. The *Melbourne Morning Herald* states that "a stone store near the wharf, of 20 to 25 ft. frontage, fetches £1,700 to £2,000 a year; and sums that bear no relation to any scale, real or imaginary," it is added, "have been paid for eligible sites for public-houses. These seem to offer the royal road to fortune-making."

STREET-LIGHT DESIGNS

Approved List Sent to Local Authorities

MORE than 2,000 local authorities all over Britain have now received a list of approved designs for street-lighting columns sent by the Council of Industrial Design.

Approved designs are those which, after submission by manufacturers to the Street Furniture Committee of the CoID, have been accepted for the approved list which it maintains. The Ministry of Transport requires that where street-lighting on trunk roads receives a contribution from central funds, the columns used be of a design approved by the CoID, or passed by one of the Royal Fine Art Commissions, which formerly held the responsibility for examining them. In 1951, while selecting the industrial exhibits for the Festival of Britain, the CoID had opportunity for talks on design matters with manufacturers which led to the selection of street furniture for the South Bank and Lansbury sites. The CoID's wide experience in dealing with manufacturers' design problems qualified it to continue the work of the Royal Fine Art Commissions.

The Ministry of Transport, at the request of the Commissions, invited the CoID to take over the task of advising manufacturers on the design of their standard products, and to maintain a record of approved designs. A Street Furniture Committee was set up in January, 1952, under the chairmanship of Mr. W. J. Worboys. Members included Mr. G. Grime; Sir Herbert Manzoni; Mr. J. M. Richards, ARIBA; Mr. M. Hartland Thomas, FRIBA; Mr. F. R. S. Yorke, FRIBA; and Mr. Gordon Russell, Director of the CoID.

There are now some 300 new designs on the approved list. The manufacturers have agreed to withdraw progressively from production columns originally passed by the Commissions which are now not acceptable.

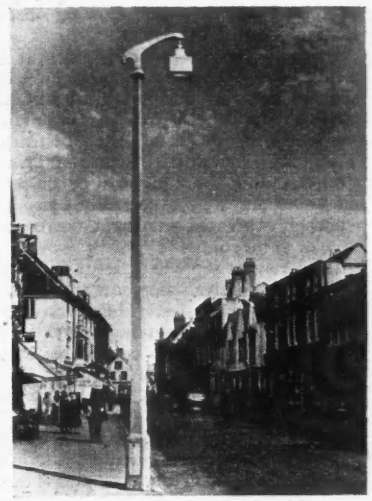
The CoID's efforts, with the willing co-operation of the manufacturers, have led to a marked improvement in the standard of design of lighting columns for "A" and "B" class roads. There is now available a wide range of slim and unobtrusive columns.

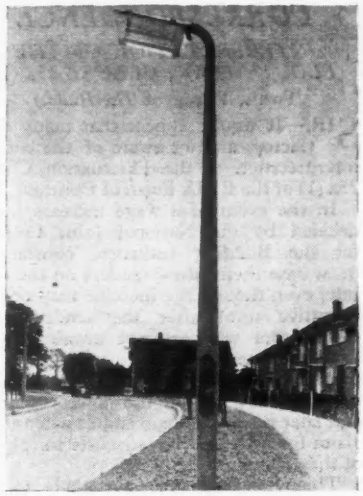
"NOT A SIMPLE PROBLEM"

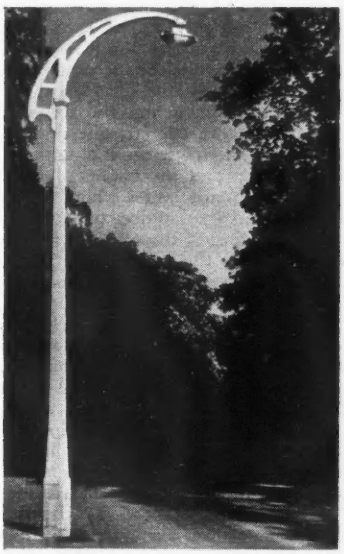
It is not a simple problem to design a good mass-produced lamp-post. The efficient distribution of light by night may demand that the post be of such a height that by day it appears out of scale with the buildings in its locality. Treatment which is too emphatic or decorative may tend to increase this disproportion.

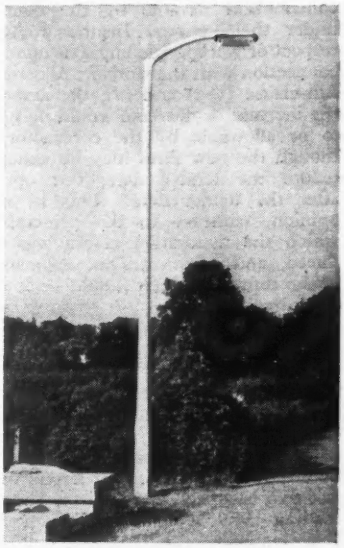
Further, there has been a tendency in the past to use ornament to create an "architectural" style which is too often unrelated to the actual site where the columns are installed. Apart from designing "specials" for each particular locality—which would of course be impracticable—the best solution would seem to be an elegant modest column.

The CoID is not exclusively concerned with lamp-posts, but hopes to extend its influence to other types of street furniture — seats, bus-shelters, litter-bins, pedestrian refuges and so on.









Column A (original designs).

Column B (revised designs).

CORRESPONDENCE

INTERPRETATION OF THE FLUCTUATION CLAUSE 25*a* (1)

To the Editor of *The Builder*

SIR,—It would appear that many contractors are not aware of the correct interpretation of the Fluctuation Clause 25a (1) of the RIBA Form of Contract.

In the event of a wage increase being decided by the National Joint Council for the Building Industry, contractors must base their future tenders on the new rate, even though the increase may not be operative until after the tender date. Contractors who are not aware of this base their tender on the wage rates in operation on the tender date, and as a result usually submit the lowest tender, and later receive a financial jolt when their claim for increased labour costs in respect of this increase is rebuked.

This, however, does not apply to increases or decreases in the employer's contribution payable by the contractor under the National Insurance Acts in respect of workpeople engaged upon or in connection with the works. According to sub-clause (1)(*c*) and (*d*), the amount of the increase or decrease would be payable to or allowable by the contractor even though the new rates may be announced before the tender date, but operative after the tender date. This is, in my opinion, contrary to the principles on which the fluctuation clause was introduced, and constitutes an inconsistency in the contract, which should be amended accordingly.

ARICS.

EXAMINATIONS OF THE RICS

To the Editor of *The Builder*

SIR,—Having just returned from my holiday I have been getting up to date with correspondence, etc., and, because of the numbers of letters in your last two issues on the subject, have been reading Mr. Willis's article on RICS Examinations. As a result of that mental exercise I feel that the following observations are called for :—

(*a*) The article should not, if the writer's statements are genuine, have been sent to any public periodical but submitted to a general meeting of quantity surveyor members of the Institution. There is no ban at the Institution on such subjects, and the opinions of corporate members are always carefully considered whether expressed in direct correspondence or at meetings.

(*b*) I cannot see what useful deductions can be made from percentage passes on the number of entries. The percentage of passes has never been high, and it is a fact that many of the candidates simply have not the ability to pass the exams (that, however, is no reason to debar them from trying).

(*c*) It must be borne in mind that the *summum bonum* of a quantity surveyor's existence is not " taking off " and is in fact not likely to be any one particular subject of the examination. He must, *inter alia*, have a thoroughly sound knowledge of materials and construction ; an ability to describe accurately and, if possible, concisely ; a facility for appreciating both sides of a problem and the foresight to supply the answers to any question arising out of his judgment on it ; faith in his own ability ; and the patience of Job to sort out the many issues which inevitably arise during the course of a contract. The acquisition of these things takes time and is among the reasons for the delay enforced between the Intermediate and Final examinations.

(*d*) I imagine that most Chartered quantity surveyors of any experience find no difficulty in obtaining salaries well in advance of those offered by Local and Central Government and that it is because of lack of applications from chartered quantity surveyors that the various authorities will consider applications from members of other Institutions.

(*e*) It must be realised, as Mr. Brough says, that to lower the standard would be unfair to those already qualified. The Institution, no matter what its detractors say or feel, holds a high place in the opinions of those, not only in this country but abroad, who govern politics and commerce, and to make entry into its ranks an easy matter would be foolish indeed. In this connection it is well to remember that the strength of the quantity surveyors' section is the strength of the whole Institution, and it is the Institution as a whole and not just the quantity surveying section which sets the standard of the examinations.

Lastly, may I pass on the gist of remarks made to me many years ago after I had passed my Final (at the second attempt). " The examinations are not considered by the Institution to be an end in themselves. They only indicate that the successful candidate has the necessary ability to become a member of the profession. They are the beginning and not the summit of a career." I did not particularly relish those remarks at the time but now, some twenty years later, I willingly endorse them.

L. H. LOCKLEY [ARICS].
179, Lower Addiscombe-rd, E. Croydon.

"These RICS Exams are difficult, but any form of mechanical calculator is definitely out !"

To the Editor of *The Builder*

SIR,—The question of revising RICS examination syllabuses, which is a matter for the appropriate committees, not for the examinee, seems to have resulted in a good deal of self-pity by the failures who blame everyone except themselves. As a past examinee and a present examiner, I must say that the ordeal of the latter is beyond all doubt the more arduous and depressing. RICS examinations are non-competitive, and anyone possessed of normal ability, a sound general education and a will to work, can with proper tuition face the examinations with joyful confidence. Yet to find a good paper is to the examiner an oasis in the desert.

Examinations are only *prima facie* evidence that the candidate has covered a certain scope of study and reached a reasonable standard in the subjects. This is quite distinct from experience, which is the application of knowledge to the daily problems. The discontent of the present time springs largely from the fact that people expect to earn a good salary while learning their job.

Candidates mark themselves into three distinct groups—the very good, the very bad and the middle group. This last group take most of the examiners' time who invariably give more than a little benefit to the doubtful case. For the capable failure who comes up year after year, a little tuition in examination practice is obviously required. If the examiner calls for four questions to be attempted and the candidate does one question only to perfection, if that is possible, he has obviously limited his chances to the marks allocated for that question. Four questions attempted, even if uncompleted, leaves the examiner the chance to allocate a proportion of marks to all the questions.

The letter by Mr. Pyser is very sound and commendable. I will reinforce his statement with a note of a group of nineteen ex-service men who sat for the intermediate in 1948, fourteen of whom passed, and three failed in one subject. Hard work and enthusiasm is the solution to most failures.

The candidate who complains at taking his " typical " again should be thankful he is not, as in many examinations, expected to take a whole section again. The candidate who moans about the delay in publishing results should understand that the examiners are busy men in practice with a great deal more to do than the candidate. The latter has two or three hours to set his shop window, but the examiner is required in his leisure time to take stock of 400 or 500 of these enterprises. As a matter of financial interest, the remuneration for this overtime, after taxation, shows about 2s. per hour, which was the rate I obtained for squaring dimensions 25 years ago.

As an examiner I must withhold my identity to avoid a fan mail, so I will borrow the title of a popular predecessor and sign myself

" DR. FELL."

(*Correspondence continued on page* 423)

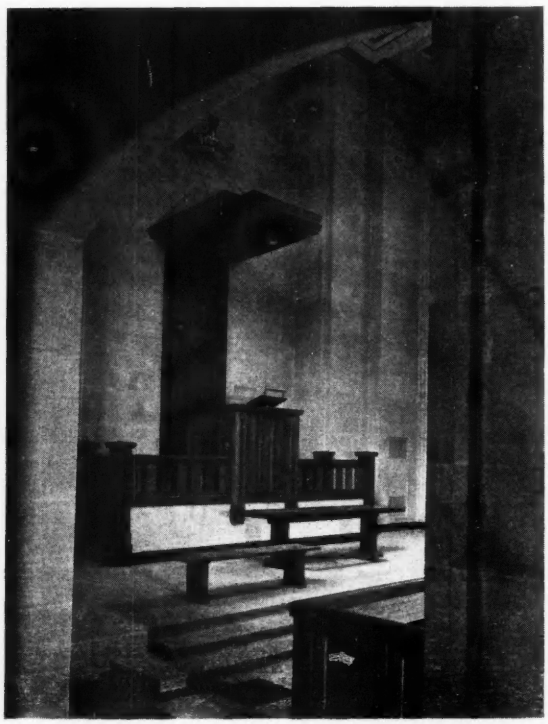
View from the north-west.

THE DUTCH CHURCH, AUSTIN FRIARS, EC

ARTHUR BAILEY, OBE, FRIBA (ANSELL & BAILEY), ARCHITECT

Quantity Surveyors	*Consulting Engineers*	*Builders*
JOHN LEANING & SON	*SCOTT & WILSON, KIRKPATRICK & PARTNERS*	*TROLLOPE & COLLS, LTD.*

View looking south-east and showing treatment of the Doulting stone lining and flooring.



Detail of pulpit from the aisle. Designed by Barend van Veen under the architect's general direction.

THE new Dutch Protestant Church in Austin Friars was opened on July 11 by HRH Princess Irene in the presence of Her Majesty Queen Juliana; The Duchess of Athlone, representing our Royal Family; the Archbishop of Canterbury and Mrs. Fisher; the Rev. Doctor Moffat representing the Church of Scotland; His Excellency the Netherlands Ambassador, and many dignitaries of the Dutch Reformed Church. It replaces the earlier building, which was destroyed by enemy action in 1940, the Dutch community having worshipped continuously in the original building since 1550.

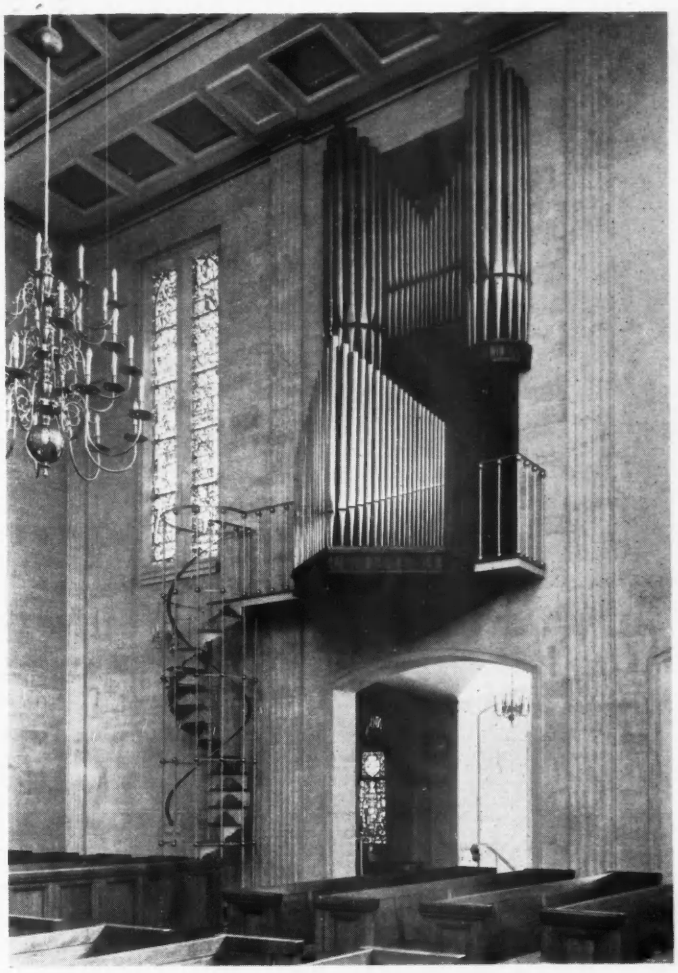
The new church covers less than half the original site, but as it is planned on three floors the total area of the accommodation is approximately equal to the original building. A block of offices will occupy the remaining portion of the site. The district of Austin Friars is subject to the City Planning Scheme, and the north façade of the church has been set back about 30 ft. in order to improve the general amenities of Austin Friars. The open space thus provided has been used as a forecourt for the main entrance to the church, the entrance to the original building being on the western side.

In a small building of this size, with a total seating capacity of only 220, it is difficult to maintain the element of space and contrast in heights, which are of such importance in church planning, but the architect has achieved this to a marked degree.

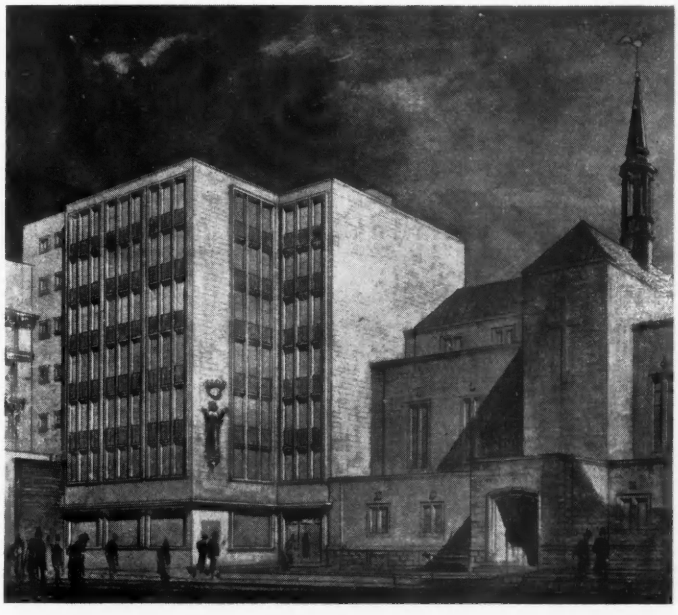
There is a sense of elevation in approaching by the short flight of steps in the north porch, and in the contrast in heights between the aisle and the nave. This careful working-out of the sections has had the effect of giving consideration to human scale, very desirable in ecclesiastical buildings.

The accommodation is given in a very simple plan, and every effort has been made to give a sense of spaciousness. This simple planning is expressed in the external treatment, where the scale of the treatment has been kept as large as possible to avoid any effect of dwarfing by the large city offices which crowd in so closely upon the site. On entering the nave, there is the central rostrum on the left designed by Mr. Barend van Veen, of Holland, under the general direction of the architect, and, to the right, a magnificent stained-glass window by Mr. Max Nauta, of Holland. This window is probably the most important contribution by the individual artists engaged upon the church, and it explains in brilliant colour and fascinating symbolism the history of the Church from the time of the Royal Charter in 1550 up to and including the present rebuilding. The flanking stained-glass windows contain the arms of 16 towns in this country which gave sanctuary and permitted free worship by the Dutch community in the sixteenth century.

The very real interest which has been taken in this building is expressed by the gifts of stained-glass windows from the Church of England and the Church of Scotland (Mr. W. Wilson, artist), and the City Corporation and the Worshipful Company of Carpenters. (Mr. Hugh Easton, artist.)



Organ and approach staircase, built of standard parts and surrounded by an iron frame painted pale blue and gold.



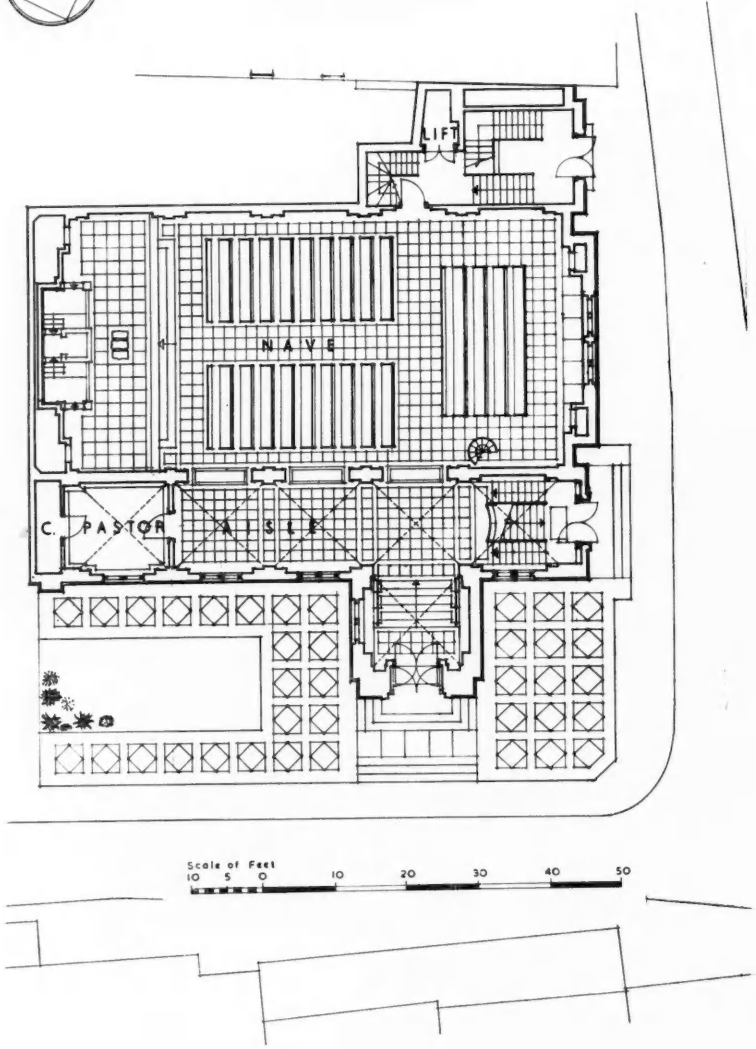
Sketch showing the office building which Mr. Arthur Bailey is designing for the adjoining site.

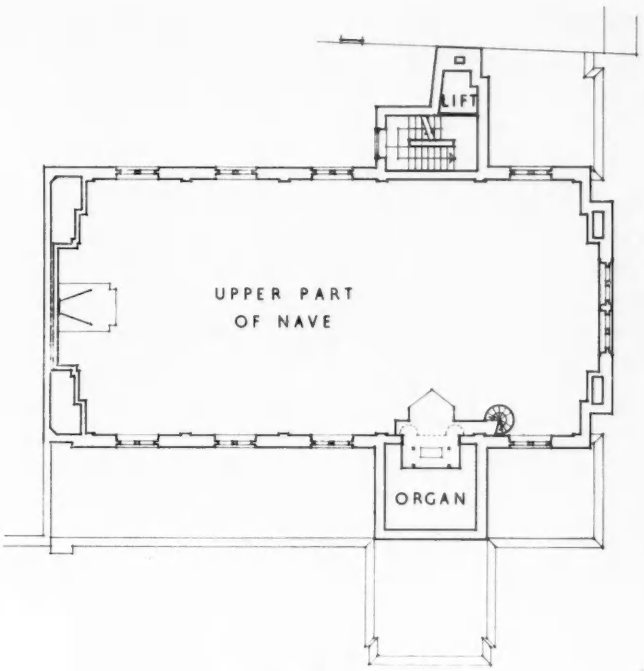
The bones of many famous men lay within the walls of the original church, Edward, Son of the Black Prince; Humphrey de Bohun, the founder of the monastery; Hubert de Burgh; and Edmund Plantagenet, half-brother of Richard II. The barons slain at the battle of Barnet were also buried here, and some of those who were beheaded at Tower Hill. Among the latter was the Duke of Arnold, who was beheaded in the latter part of the fourteenth century, and, according to legend, was so infuriated at losing his head that he replaced it, and is reputed to have lived to be buried ultimately at Austin Friars. This incident forms the subject of the sculpture by Professor John Skeaping, ARA, on the east side of the north porch, where it symbolises the rebuilding of the new church on the site of that which was similarly "beheaded."

The Roman and Medieval London Excavation Council had access to the site for a period of six months before

Royal monograms below the west window. Carved by Mr. Esmond Burton, each is about 4 ft. high.

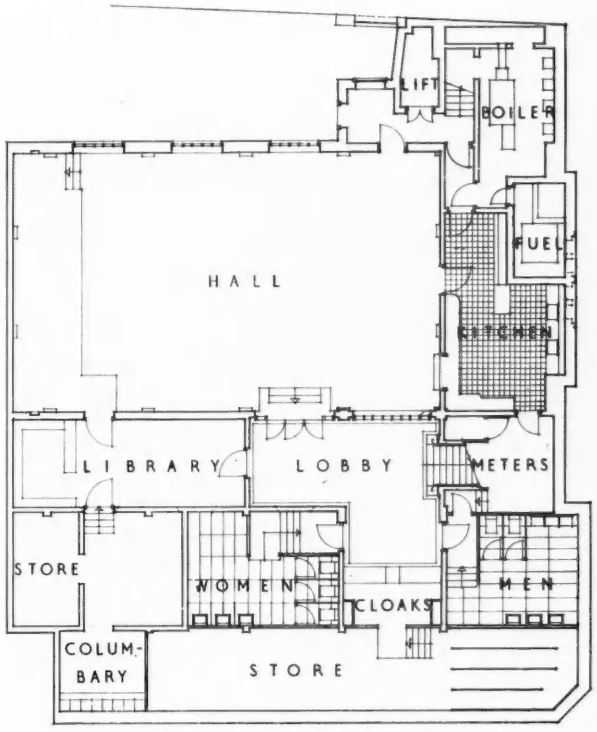
Right : Upper ground-floor plan of the church.





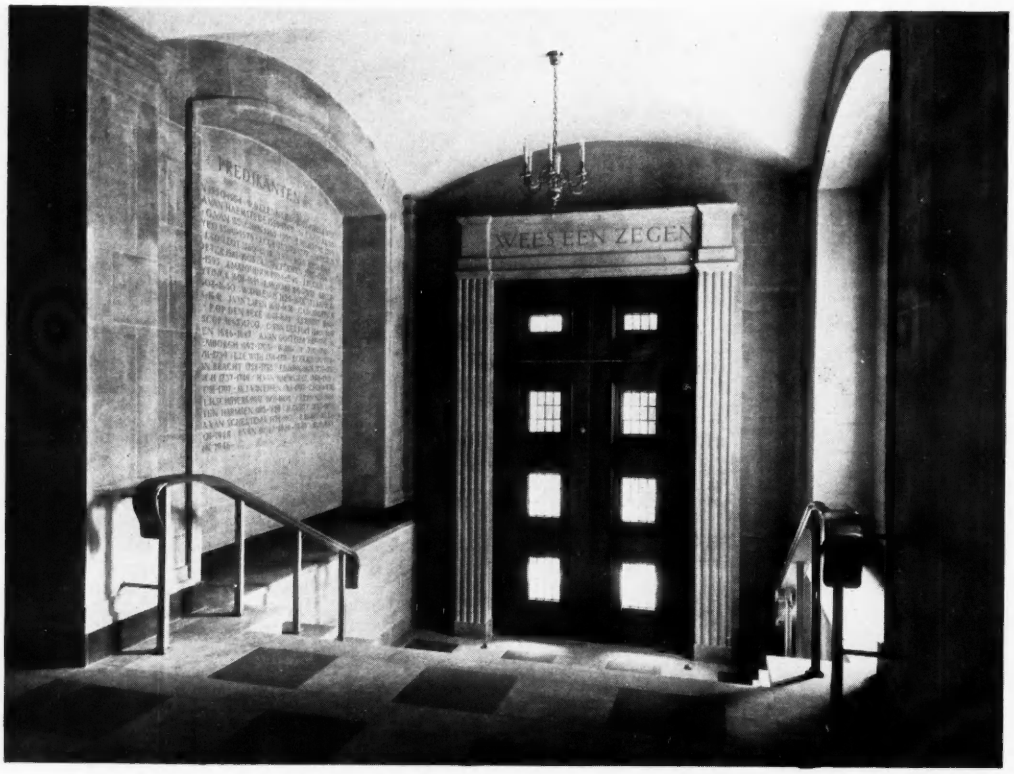
First-floor plan.

Detail of turret in teak with lead-covered spire and gold leaf enrichments. The weathercock by Professor John Skeaping, ARA, is about 4 ft. long.

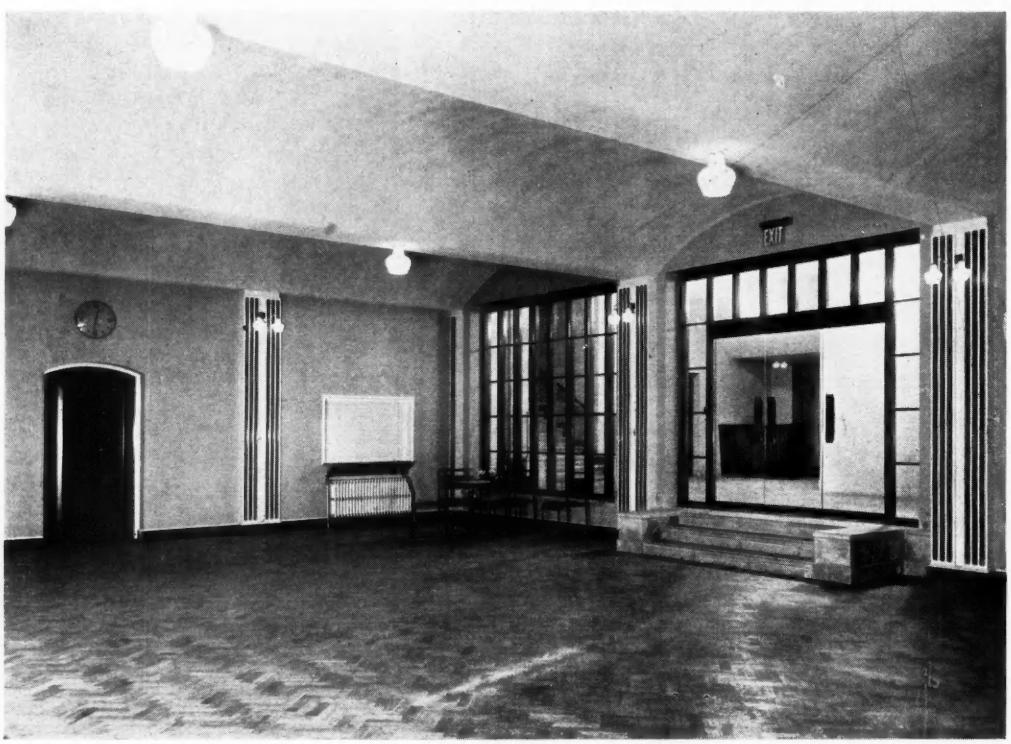


Lower ground-floor plan.

Detail of the stained glass in the west window. On the left is St. Augustine of Hippo ; on the right Johannes a Lasco, the first superintendent of the church. The windows, which are larger than life size, are by Max Nauta, of Amsterdam.



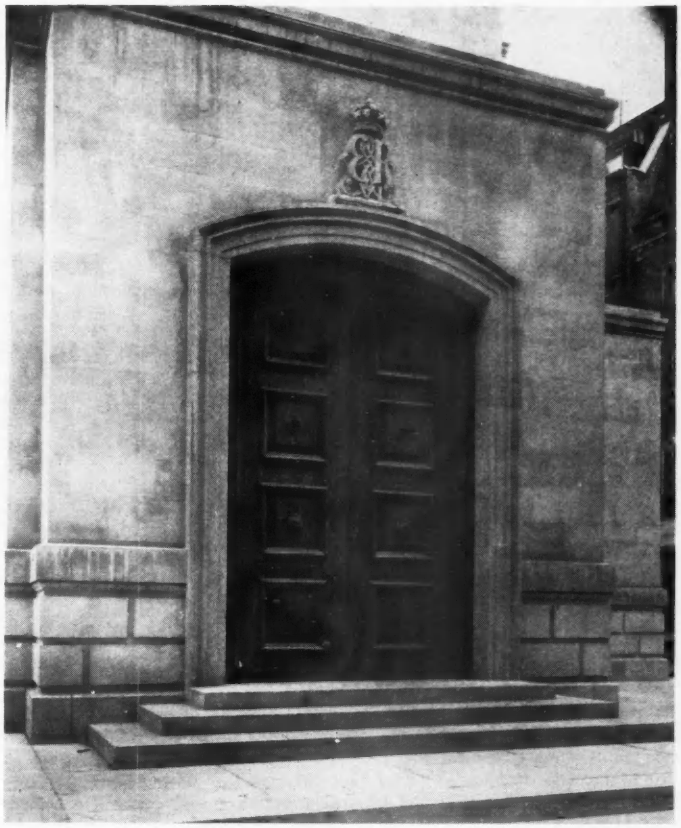
The entrance, showing the names of Pastors from 1550 *to the present day. The handrail is in satin finish bronze with iron balusters painted alternate bands of gold and pale blue. Below is the church hall, looking from platform to the entrance. The ceiling is pale blue, walls bright yellow, doors Venetian red. Skirtings and flutes to pilasters dark blue.*



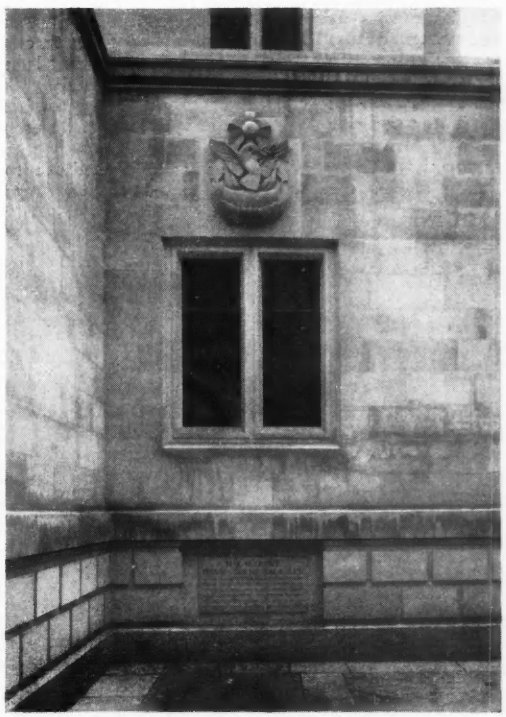
building operations commenced, and some interesting discoveries were made.

A reinforced concrete boxed frame was considered to be the best form of construction for a building with such varying requirements. Walls are faced externally with Portland stone anchored to the reinforced concrete frame with copper ties. Internally, the church is lined with Doulting stone anchored to the reinforced concrete frame in a similar manner. The floor of the church is Ancaster and Portland stone, with the darker squares in green Westmorland slate. The area covered with pews is finished with wood block. Heating is by a combination of floor panels and radiators with electric heaters under the clerestorey windows. The boilers are oil-fired. The cove ceiling to the church is in fibrous plaster with acoustic tile panels. Mr. Hope Bagenal was consulted in regard to the acoustics.

Sub-contractors and suppliers were : heating, Rosser and Russell ; electrical installation, Tyler and Freeman ; granite work and terrazzo, Fenning and Co., Ltd. ; joinery, J. P. White and Son, and Trollope and Colls, Ltd. ; fibrous plaster, stonework (Doulting and Portland), leadwork and granolithic, Trollope and Colls, Ltd. ; metal windows, Luxfer, Ltd. ; asbestos spray, Newalls Insulation Co. ; metal shutters, Shuttering Contractors, Ltd. ; kitchen equipment, Stott, and E. & H. Grace ; wood block flooring, Hollis Bros. ; sanitary fittings, John Bolding and Son, Ltd. ; door furniture, Yannedis and Co., Ltd. ; pressed metal door frames, Henry Hope and Sons ; electric light fittings, Merchant Adventurers, and Troughton and Young ; curtains, John Lewis ; tubular balustrade, Clark Hunt and Co., Ltd. ; wrot ironwork, Luxfer, Ltd. ; armour plate doors, Pilkington Bros. ; lightning conductor, J. W. Gray and Sons, Ltd.; acoustic tiles, Horace W. Cullum; fan convectors, Flexaire, Ltd.

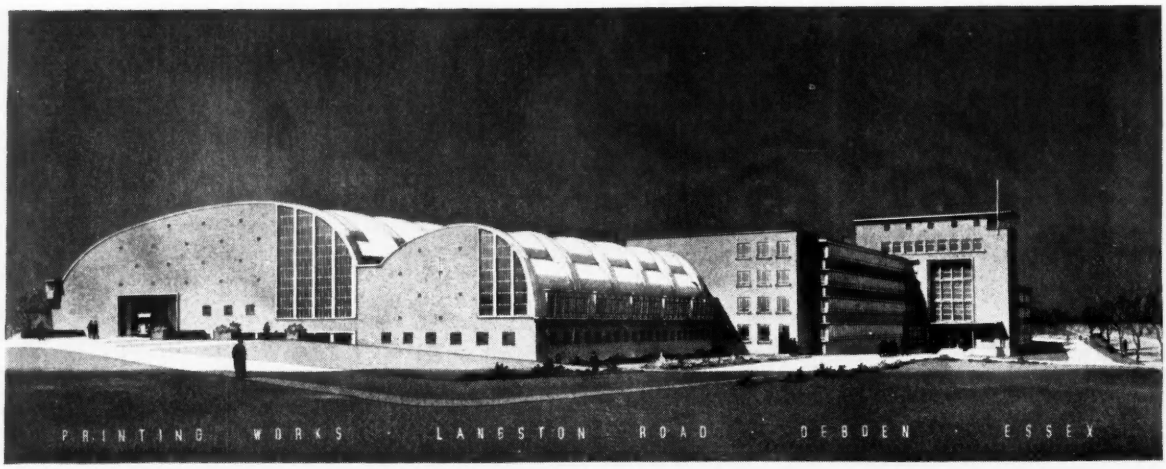


The main entrance. The architrave is in granite, doors being in English oak with green bronze enrichments modelled by Mr. MacCarthy.



Above : Trowel and mallet used by HRH Princess Irene and made in old oak taken from a beam which had to be replaced in a 13th-Century church of about the same age as the original building which stood on the site. Left : Detail of aisle, showing the foundation stone laid by Princess Irene in 1950 and symbol of the dove of peace arising from the flames of war, carved by Professor John Skeaping, ARA.

THE DUTCH CHURCH, AUSTIN FRIARS, EC



Drawn by Lawrence Wright.

An impression of the completed scheme.

PRINTING WORKS FOR THE BANK OF ENGLAND, DEBDEN, ESSEX

Architects
EASTON & ROBERTSON, FF.RIBA

Consulting Engineers for the Structure
OVE ARUP & PARTNERS

Builders
SIR ROBERT McALPINE & SONS, LTD.

THIS building, on which construction work began in June, 1953, is destined ultimately to replace the present Bank of England printing works of St. Luke's, and will provide enlarged accommodation and modernised plant. The site adjoins the London Transport Station at Debden and is in an area reserved by the London County Council for industrial developments.

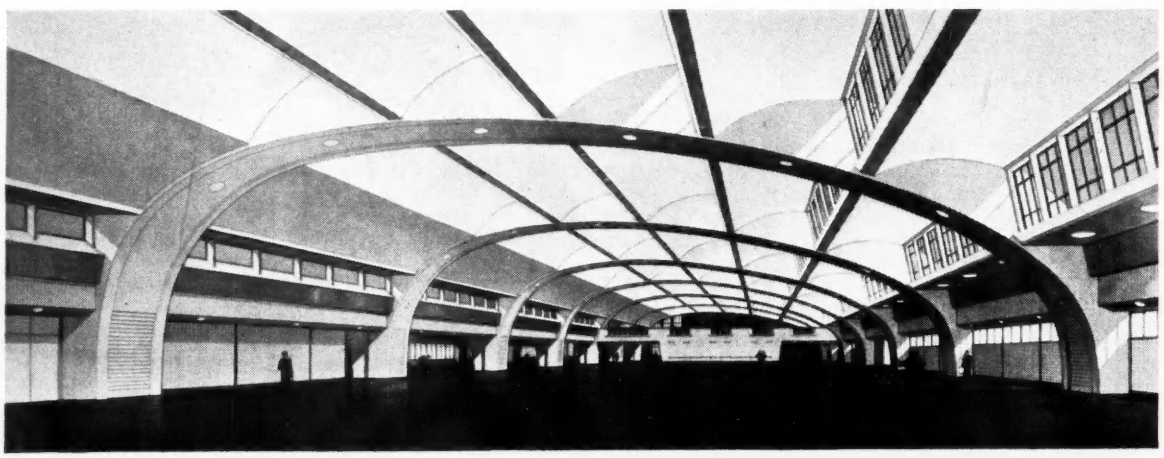
The accommodation includes administrative and general offices, works space for various types of printing, a chemists' section and ancillary works of various types, in addition to the requisite vaults and stores.

The site is about a quarter of a mile long and about 200 yds. wide, and the main building is some 800 ft. long with a maximum width of about 300 ft. A second building, comprising the canteen and recreation and committee rooms is separate from the main building but connected by a subway. Total floor space will be approximately 443,000 sq. ft.

The planning is based largely upon the productive flow for the printing processes. The main building is for the most part on two levels to take advantage of the sloping site. These levels are referred to as the upper-ground-floor and the lower-ground-floor: the former consists of production space and the latter contains heating and electrical plant, lavatories, cloakrooms, engineers' workshops, etc. The main production hall occupies the entire north side of the building; south of this hall is the general printing hall, store-rooms and a smaller production hall. On the south elevation there are in addition three-, four- and five-storey blocks which contain office accommodation, research laboratories, etc., and the east elevation comprises similar multi-storey blocks above an underground boiler house.

The upper-ground-floor area is covered by three types of roof construction. How these roofs were to be built largely determined the method of building throughout, because equipment required for their construction also had to be employed for the rest of the job.

The construction methods to be used were determined by the repetition of



Drawn by Lawrence Wright.

An impression of the interior of the main printing hall.

structural elements. In the case of the main production hall the design of 22 identical bays of arched beam and concrete shell roof construction has readily provided these elements. There is also repetition to a lesser extent in other parts of the building : in a small production hall with five bays of arched beam and shell construction, and in another hall with balanced cantilever beam and shell construction of four free-standing bays.

For the main hall the problem was to cover a large space without internal supports and to give daylighting to this floor space by means of north light. An arched roof was chosen on aesthetic grounds, and a mathematical curve was used to give the necessary clearances, and to produce a smooth curve which gained the architects' approval. In order to accommodate ventilation, heating, electrical and plumbing services it was decided to separate each pair of arches by a 3 ft. 6 in. gap : this gives 22 sets of identical structures, each consisting of two arches with north-light shells spanning between them. The arches were designed to be prestressed by the Freyssinet system.

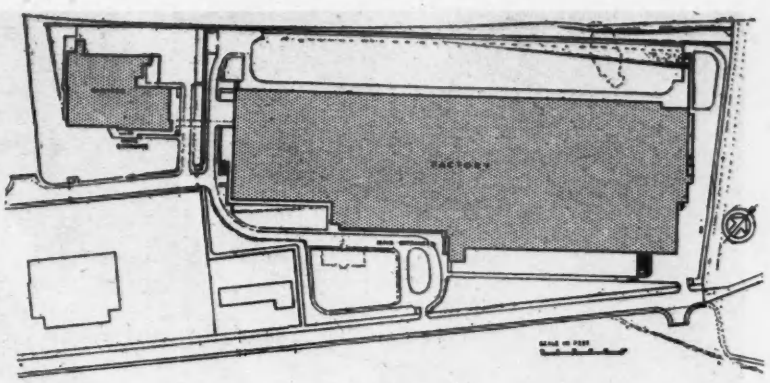
The dimensions of the arch legs had to be kept to a minimum up to the level of the security gallery roof for reasons of planning. The tie force acting at upper-ground-floor level on the arch produced high bending moments on this narrow section. It was therefore decided to use prestressing in order to reduce this tie force and, in consequence, the bending moments in the legs of the arch.

Prestressing also helped to reduce the width required for the members and, as a result, the self weight which formed a large proportion of the total load.

MAIN ROOF ARCHES

Many factors were taken into account before it was decided to precast the main arches of the roof of the main production hall in segments and to pour *in situ* the concrete of the shell roofs uniting these arches, so as to form a bay some 36 ft. long. The need for accuracy in the shape of the arches and identity from bay to bay was important, but so also was the quality of the surface finish of the concrete in members of slender sections in which are buried prestressing cables in close proximity. Of even greater importance was the accurate location of the stressing cables. The speed of construction was very vital to this part of the work since, if construction here proved to be slow, then the rest of the job would be equally slow.

By precasting the centre section of the arched beams and making units of about five tons weight each a major part of the problem was solved, since the accurate shape of the arch could be ensured by casting every arch on an identical bed. As this bed would be laid out flat the concrete itself could be placed with a maximum control around accurately placed duct tubes, and a good surface finish obtained. Also these arched beams carry fixings for mechanical equipment installed in the roof spaces, and by this method the precise location of these fixings and other features could be ensured.



Block plan.

A five-ton derrick with 120 ft. jib was therefore installed to handle the precast elements, and also to assist in the remainder of the construction.

A steel gantry was designed on which to erect the precast arched units. This 60-ton gantry is articulated in such a way that the setting up at each bay to ensure an accurate profile is easily achieved by jacking at the main supports. The shutters for the shell roofs, which span from arched beam to arched beam, are each framed up in one piece to span between the main towers of the gantry. These shutters are raised and lowered in the gantry frame by a system of pulleys and winches and, once the main frame of the gantry is jacked to its correct alignment and profile, the shell roof shutters are winched up to a fixed position and bolted, each on six bolts.

After the concrete of the shells (which is poured *in situ* from skips handled by the derrick) has hardened, the barrel shutters are easily lowered by the winches. After stressing, the gantry is also lowered by the jacks on to the bogies so that the whole gantry with all its formwork is moved on rails to the next bay ; the entire process of lowering and erecting takes only a few hours.

The lower parts of the arched beams and galleries were cast *in situ* and shutters in large units were used which could be handled by the derrick ; all prestressing ducts were cast in. An exception to this is the fluted front of the galleries. As this is a major decorative element in the design it was precast on a teak shutter so that a first-class finish could be ensured.

The upper-ground-floor—that is, the floor of the main hall, the general printing hall and the smaller production hall—is generally of flat slab construction. In the main hall, where columns could be fairly closely spaced (bay sizes 18 ft. by 19 ft.) there are no capitals. This helped the detailing of services, which are fairly extensive under this floor. Bracket capitals are used under the floor of the general printing hall where larger bays (24 ft. sq.) are required.

GENERAL PRINTING HALL

The roof of the general printing hall covers the space between the multi-storey blocks on the south elevation, and the structure of the main hall. It was necessary to provide an expansion joint at each side of this roof and a balanced cantilever structure was therefore selected, making a complete break with the structure on either side. These cantilevers were prestressed to limit the deflection and to reduce the thickness of beam which would have been required in reinforced concrete.

Maximum use was made of the five-ton derrick in the construction of this roof, which is some 100 ft. wide. It consists of four free-standing bays, and each bay is made up of four cantilever beams spanned by a series of north-light shell roofs. Each shell is about 24 ft. long, so that each bay of three sets of shell roofs with cantilever supporting beams is 72 ft. long.

The shells are precast and weigh about five tons each, while the beams are cast *in situ* with shutters in large sections which can be handled by the derrick. The beams are some 7 ft. deep and 9 in. and 6 in. thick : they are cast *in situ* because the prestressing system adopted is completely exposed during construction, so that there is the minimum obstruction in the section of the beams, and proper placing of the concrete to give good quality consolidation and surface finish is more readily achieved.

CANTILEVER BEAMS

The cantilever beams are prestressed on the Gifford-Udall-CCL system by a series of single wires assembled in 12 layers, one upon the other, each layer of wires being longer than the one below it in such a way that a precise distribution of stress in the beam can be ensured.

The anchorage of the wires was specially designed and consists of 1-in. thick metal plate buried and anchored in the concrete of the beams in such a way that it can take a load, in the case of the 9-in. thick beams, of some 60,000 lb.

When the beams are cast, and before they are stressed, the precast shells, which are constructed so that they are about 1 in. shorter than the space between the beams, are lifted by the derrick and placed between the beams. There are eight shells between each pair of beams. The space between the ends of each shell and the face of the beam in which there is a $\frac{1}{4}$-in. recess is then packed with mortar. When all the shells in the 72-ft. bay are in position and the joints packed with mortar, the whole roof is then prestressed in a transverse

View of part of the interior of the main printing hall. Below : Part of the main hall showing treatment of the gallery.

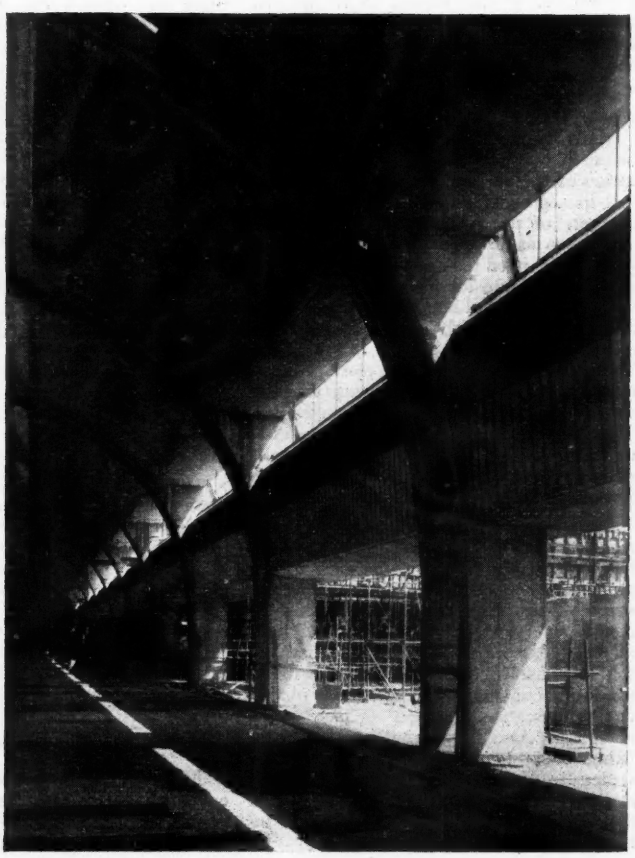
direction; that is to say, along the shells and through the beams, with six prestressing wires to each shell. As there is a series of eight shells, there are, therefore, 48 wires to each bay. When the shells have been prestressed and loading of the beams is thus provided, the beams are also prestressed. This is done by working upwards from the shorter wires, layer by layer, until the longer upper wires are stressed.

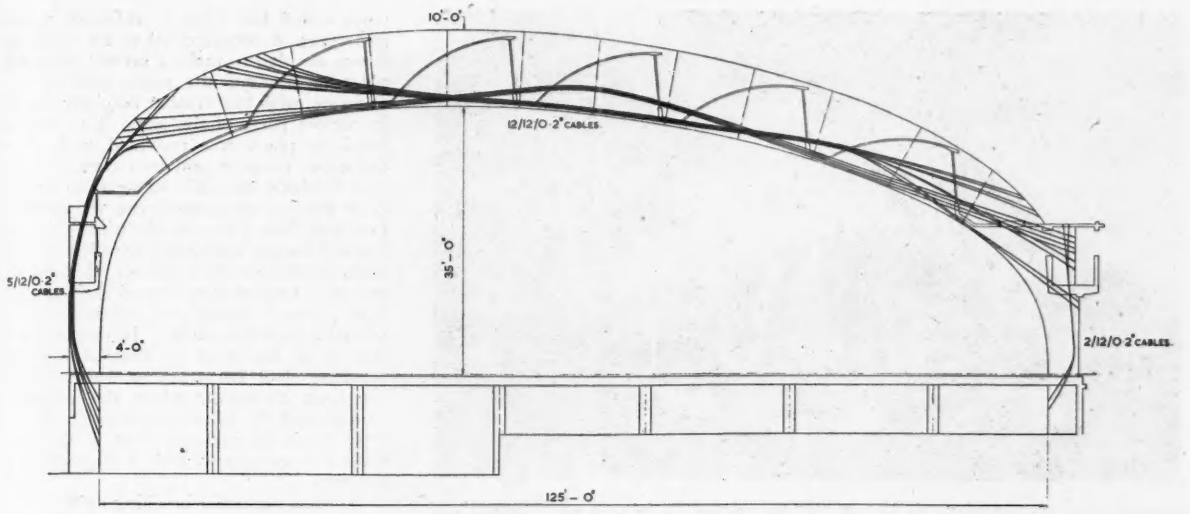
LOADING THE BEAMS

It was necessary to devise a method of temporarily loading the ends of the cantilever, so that, as the stressing of the beams proceeds, there is no over-stressing of the concrete at the top of the beam in compression. In addition, since it was necessary ultimately to concrete in the prestressing wires on top of the beam to protect them from the weather, this concrete, because it is not prestressed in the same way as the remainder of the beam, may crack, due to differential movement with consequent exposure and corrosion of the wires.

It was decided, therefore, to load the beams in two stages. First, to load them sufficiently to ensure that the concrete is not over-compressed during stressing. Second, to induce deflection in the cantilevers before surrounding the prestressing wires with concrete, so that when this concrete is mature, the release of the loads would result in an upward movement of the cantilever and a consequent compression in the concrete on the top of the beam.

This loading is provided by a steel rod anchored by a stirrup to the underside





Cross section of main printing hall.

of the ends of the cantilever, and joined to a short beam which itself is anchored to the heavy floor by means of bolts. One side of this short beam is bolted to a plate in the floor, and the other side joined to a similar plate by means of single wire prestressing. In this way, by prestressing the wire stage by stage, and shimming against the anchor, progressive loading can be given to the steel rod and, therefore, to the beam. This loading is measured by reading both the gauge of the stressing jack and by strain gauge readings on the rod. Loads up to about seven tons are in this way quickly placed on the cantilever.

MULTI-STOREY BLOCKS

The multi-storey blocks which form the south elevation have spans which vary from 24 ft. to 30 ft. The structure of these buildings consists of rib beams 15 in. deep at 2-ft. centres, covered by a 3-in. slab. These ribs span on to a 21-in. deep edge beam which is in turn supported by columns at 12-ft. or 6-ft. centres. The same rib section was used for all spans and loads and the amount of reinforcement was modified to suit the different conditions. A false ceiling conceals all the electrical and heating services.

Work on the superstructure of the south half of the job is also controlled by a five-ton derrick with 110-ft. jib. The precasting technique can be widely used in this part of the building because, although there are many types of construction, the elements are frequently repeated.

The architects have made considerable use of concrete in the elevational treatment. A number of the main columns some 30 ft. long have been precast, since this gave continuous unjointed concrete, and a concrete finish which is practically flawless. Also, as the columns were cast on the site, the quality of the concrete could be closely supervised so that the necessary weather cover on the steel could be ensured. These columns weigh some four-and-a-half tons.

The ribbed floors are also precast, by reducing the design to inverted "L" shaped units. The horizontal arm of one "L" rests on a recess in the horizontal arm of the next. Where the floors have loads which are heavier than normal, continuity from unit to unit is ensured by prestressing across the units and in the floor thickness by the single wire Gifford-Udall-CCL system. The precast floor units, with reinforcement projecting at each end, are united by *in situ* cast concrete beams at their ends. These beams also join the precast columns on the front elevations.

All these floor units, some 1,600 in number, were cast on the site and handled by the derrick which serves the south part of the building.

THE CANTEEN

The canteen is a reinforced concrete building covered by three different types of shell roof for the kitchen, the dining hall and the recreation room respectively.

There is provision for possible expansion along the uninterrupted north flank of the building. The concrete-retaining wall on this side of the site is designed on the cantilever principle. It is about 1,000 ft. long and varies in height from about 3 or 4 ft. to 14 ft.

The architects required this wall to be finished with a vertical corrugated pattern, and since the wall had to be constructed in a fully strutted trench it was necessary to provide holes through the wall. This meant that the holes had to be arranged in a regular pattern as they would be prominent in the finished work. The major part of the wall was therefore precast in units of about 9 ft. in length and weighing up to about five tons, in order to ensure the regular placing of the holes and also a very good finish to the surface. These units were cast face downwards.

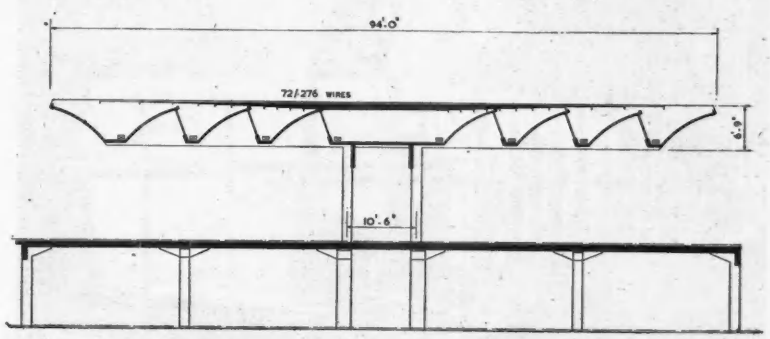
After the main concrete foundation of the wall had been formed in the trench, with the reinforcement projecting, the precast units were lowered through the trench timbers and placed in position, and the junction between the lower part of the wall and the foundation cast with *in situ* concrete.

FOUNDATIONS AND DUCTS

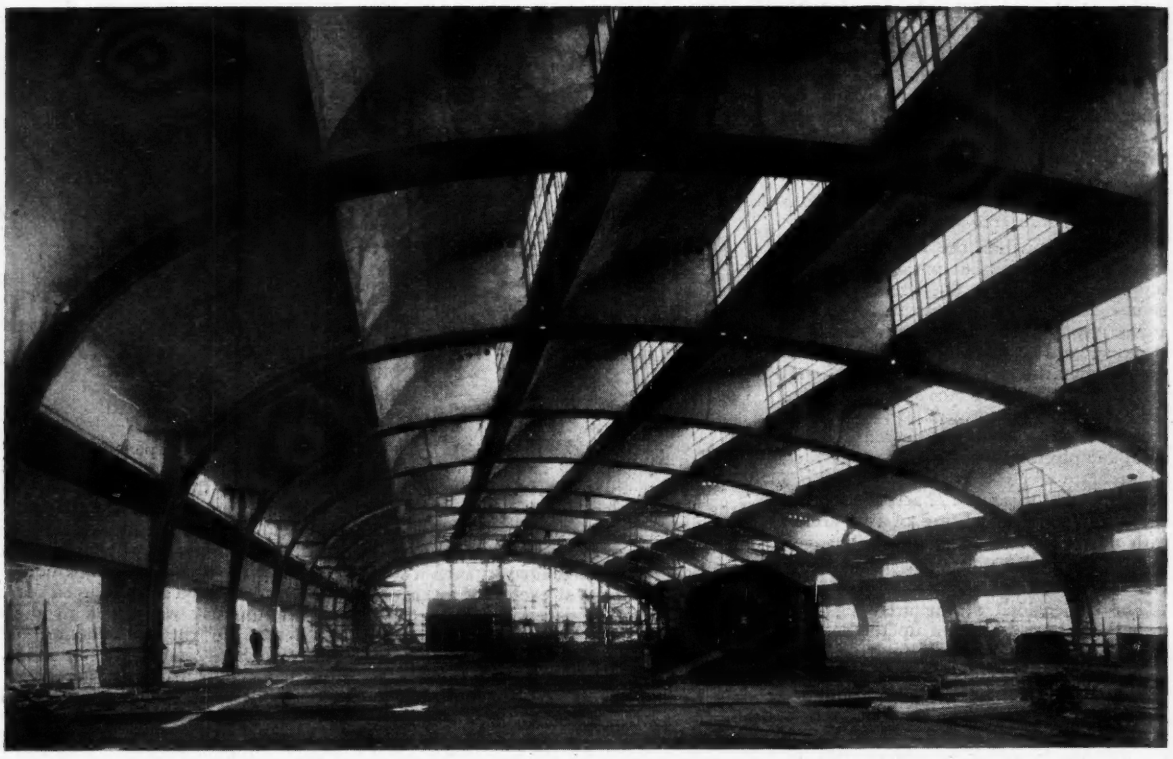
The foundations are generally isolated pad foundations on brown clay, which at a depth of 7 ft. below original ground level was capable of sustaining a load of two tons per sq. ft.

Other work below ground consists of ducts of various sizes to accommodate heating and electrical surfaces. These ducts are in reinforced concrete; the walls were precast in about 10 ft. lengths, generally 6 ft. 6 in. high and jointed with 12-in. lengths of *in situ* concrete; these units were placed with a mobile crane.

Since the specification for the concrete



Cross section of general printing hall.



View of part of the interior of the main printing hall. Below : Part of the main hall showing treatment of the gallery.

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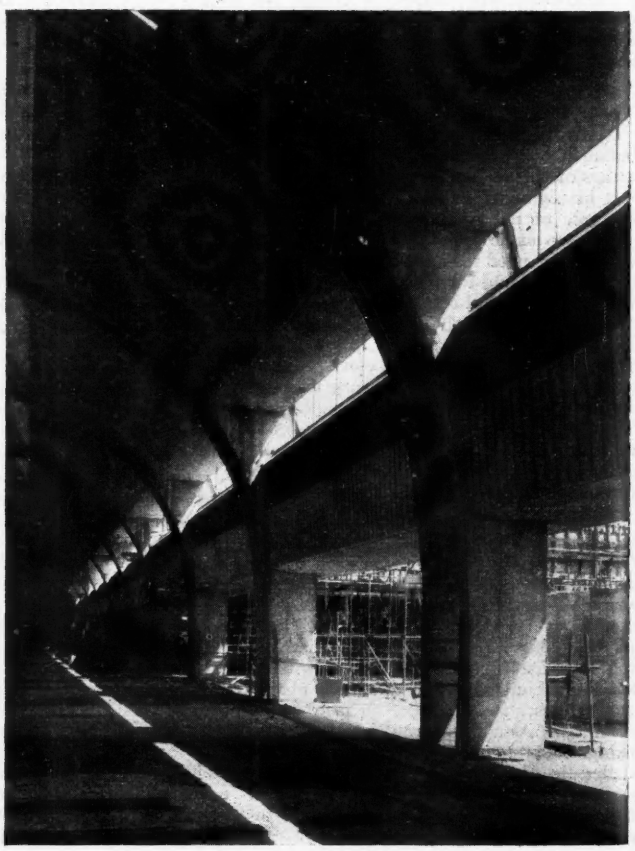

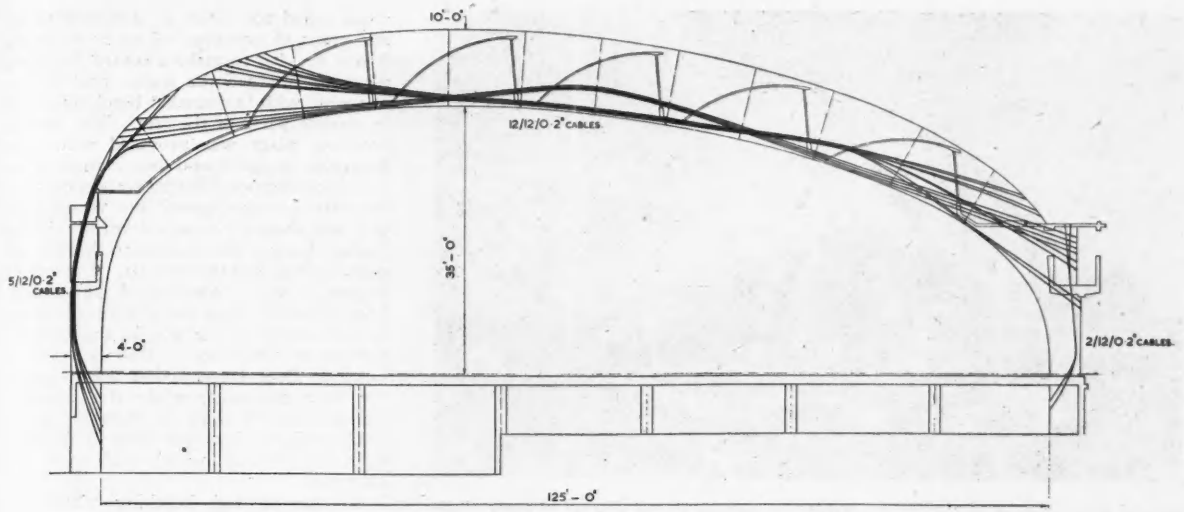

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There is provision for possible expansion along the uninterrupted north flank of the building. The concrete-retaining wall on this side of the site is designed on the cantilever principle. It is about 1,000 ft. long and varies in height from about 3 or 4 ft. to 14 ft.

The architects required this wall to be finished with a vertical corrugated pattern, and since the wall had to be constructed in a fully strutted trench it was necessary to provide holes through the wall. This meant that the holes had to be arranged in a regular pattern as they would be prominent in the finished work. The major part of the wall was therefore precast in units of about 9 ft. in length and weighing up to about five tons, in order to ensure the regular placing of the holes and also a very good finish to the surface. These units were cast face downwards.

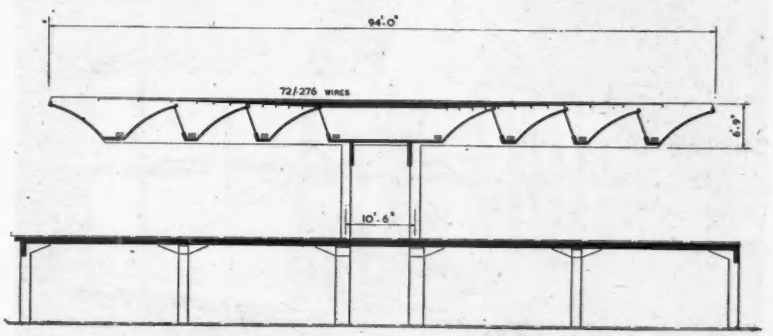
After the main concrete foundation of the wall had been formed in the trench, with the reinforcement projecting, the precast units were lowered through the trench timbers and placed in position, and the junction between the lower part of the wall and the foundation cast with *in situ* concrete.

FOUNDATIONS AND DUCTS

The foundations are generally isolated pad foundations on brown clay, which at a depth of 7 ft. below original ground level was capable of sustaining a load of two tons per sq. ft.

Other work below ground consists of ducts of various sizes to accommodate heating and electrical surfaces. These ducts are in reinforced concrete ; the walls were precast in about 10 ft. lengths, generally 6 ft. 6 in. high and jointed with 12-in. lengths of *in situ* concrete ; these units were placed with a mobile crane.

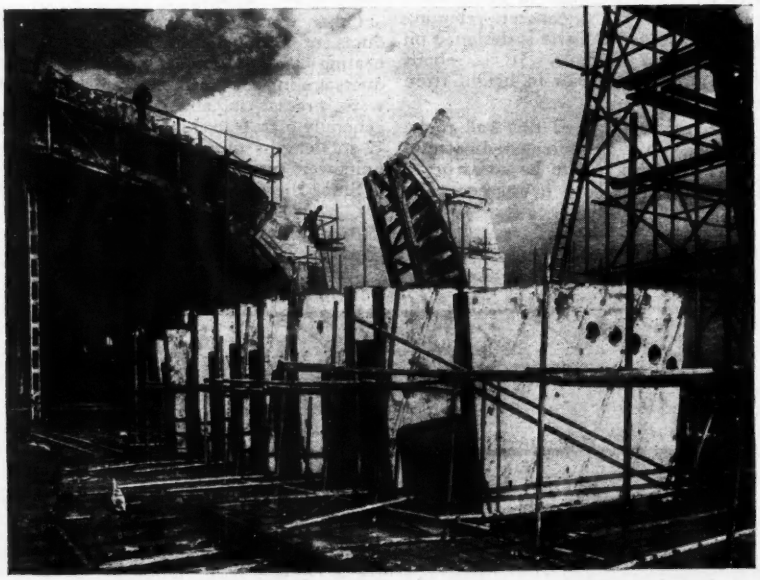
Since the specification for the concrete



Cross section of general printing hall.

General view showing crane lifting concrete for casting the in situ *north-light shells.*

North-light shells of the general printing hall, with roof of main hall beyond.



Precast concrete arch units are here seen ready for lifting into position.

work called for some 15 different mixes and types of concrete, all to be vibrated, it was decided to make a central batching plant to produce the major part of the concrete, with two smaller batching plants in remote parts of the site. The central batching plant was provided with four aggregate hoppers and two cement hoppers handling two different sorts of cement. This batcher discharged into weigh hoppers and thence into an electrically driven loading hopper and was controlled by one man feeding into two one cu. yd. concrete mixers. One of these served skips travelling on two ft. gauge track, while the other served a concrete pump. In this way the heavier *in situ* work in foundations and machine floor construction was pumped for long distances, while the concrete transported by skips on two ft. gauge track could be brought close to the derricks for hoisting to high shell roofs and columns.

As this central batching plant was adjacent to the precasting yard, ready distribution of the small but frequently required quantities of different grades of concrete was ensured.

FORMWORK

Formwork for the job, apart from the travelling gantry, has been designed and made on the site. To give the necessary high quality of finish to the work resin-bonded ply has been widely used. The high cost of these specially made shutters has made it necessary to obtain as much use from them as possible.

Practically the whole of the *in situ* part of the concrete has been cast in steel pan formwork. In the case of the main machinery floors, which are from 12 in. to 15 in. thick and designed on the mushroom principle, which gives large areas of flat soffit surface, it was possible to fabricate forms on a framework so that they could travel in panels some 24 ft. long. This ensured the minimum of work in striking and fixing.

Following is a list of the principal subcontractors engaged on the scheme :

Crittall Manufacturing Co., Ltd., metal windows; Electrical Installations, Ltd., electrical engineering services; William E. Farrer, Ltd., sewage disposal equipment; G. N. Haden and Sons, Ltd., mechanical engineering services ; J. A. King and Co., Ltd., Glascrete lights; Ruberoid, Ltd., felt roofing; Stevens and Adams, Ltd., wood block flooring; Val de Travers Asphalte Paving Co., Ltd., asphalt roofing and flooring; Waygood Otis, Ltd., lifts installation; Alfred Bagnall and Sons, Ltd., painting ; Faulkner Greene and Co., Ltd., glazing; Holloway Metal Roofs, Ltd., copper roofing; South-Western Stone Co., Ltd., York and Portland stonework; Stitson White and Co., Ltd., plumbing.

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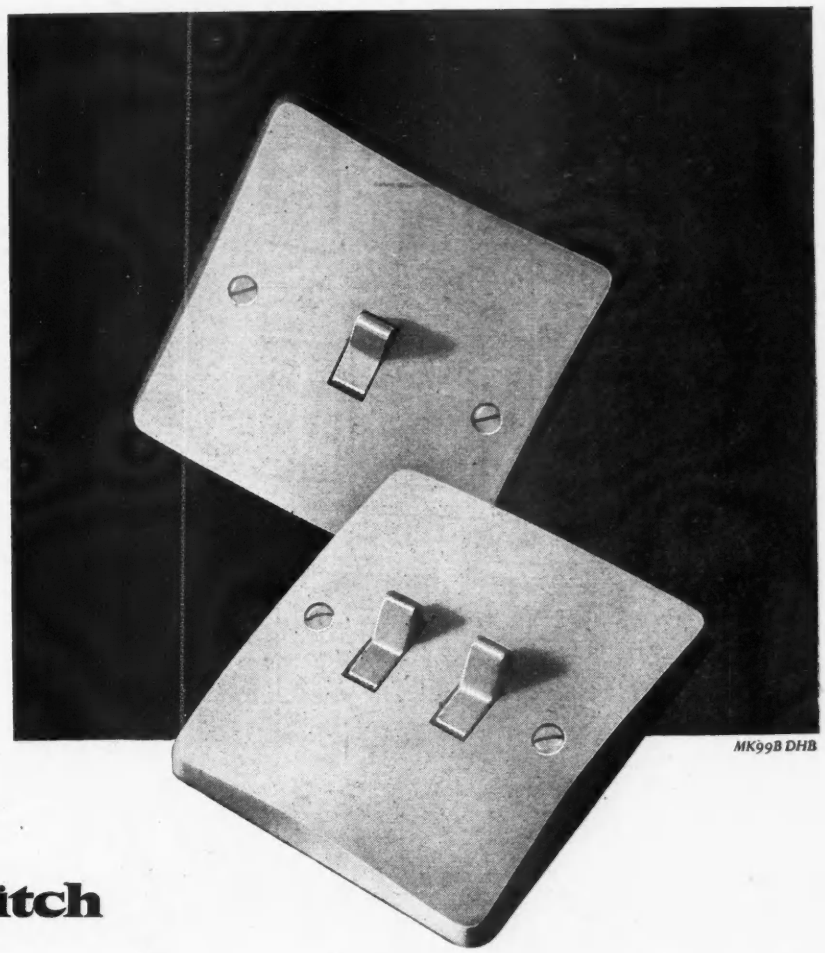

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CORRESPONDENCE

(*Continued from page* 410).

EXAMINATIONS OF THE RICS

To the Editor of *The Builder*

SIR,—The correspondence provoked by Mr. A. J. Willis's interesting article on the subject of the RICS examinations (your issue of August 20) seems to me to have missed the important point that, under the terms of its Royal Charters, the Institution was established in order, *inter alia*, "to maintain and to extend the usefulness of the profession for the public advantage."

In view of the complexity of modern professional practice I think that the scope of the examinations may have to be broadened rather than narrowed, and as regards the difficulty of the examinations I am of the opinion that the public has the right to expect that the appellation "Chartered Surveyor" should indicate the highest degree of qualification.

E. M. CARROLL [FRICS]
Triangle Corner, East Sheen, SW14

To the Editor of *The Builder*

SIR,—So many people, for so long, have wished to criticise the authority of the RICS, but it required someone like Mr. Willis who is looked upon by many as the patriarch of the quantity surveying profession to debunk the fantastic situation which exists in the profession today.

The immediate response to the article by Mr. Willis and his own remarks that "There is, too, a drift among students towards the lesser lights in the firmament," would seem to indicate that all is not well in the world of quantity surveying.

By means of maintaining an absolute autocracy and a rigid "no appeal" rule, the RICS has inculcated something very near to fear in the hearts of prospective entrants to the profession. The effects of this are often visible in the marked aloofness which frequently becomes a characteristic of newly elected members.

It might be very pertinent to inquire whether there are any limits to the number of candidates passing the examinations. Even if an excessive number passing one year has the effect of increasing the difficulty of the questions the next year, this immediately becomes a form of restrictive practice. It is not easy to find a level but this should be maintained once it is found and not lifted higher to exclude all but nine per cent. of the candidates.

One cannot but deprecate the suggestion of your correspondent E. A. Pyser that other qualifying bodies are "more lenient." The RICS have not been granted divine guidance in the mode of testing candidates and other bodies are entitled to approach the problem differently.

I do not think that anyone would deny that it is possible to be much more tolerant than the RICS without in any way reducing the qualifying standards.

Sufficient that both the IAAS and the IQS have been recognised officially by the Municipal Corporations.

There is room for more than one body holding qualifying examinations in any profession just as there is for more than one political party in a democratic country, and the very noticeable drift of so many prospective surveyors to both the IAAS and the IQS examinations is a sign of virility and independence of outlook in our younger men. Whether the RICS choose to bury their head in the sand or not, the waters are around them and they are rapidly being left behind to enjoy their splendid isolation.

But in expressing our gratitude to Mr. Willis for his courageous statement we must not overlook the quite practical suggestions which he makes and which I believe may be summarised as follows:

(1) Two professional examinations only and a maximum of nine subjects, some taken in the intermediate examination and others in the final.

(2) Any other subjects considered essential for the status of "Fellowship" to be relegated to a post graduate course.

(3) All examinations to be held twice yearly.

(4) The definition of the present undisclosed "reasonable standard of proficiency."

These suggestions would bear serious examination not only by the RICS but by the other two recognised bodies, namely the IAAS and IQS.

I believe the IAAS already hold their examinations twice annually and that it is possible to take the final examination in two parts, one part in May and the other in November. This seems to be a step in the right direction but there is still scope for improvement on the lines of Mr. Willis's suggestions.

FINAL EXAMINER.

To the Editor of *The Builder*

SIR,—As a member of the Institution to which Mr. Willis belongs I was surprised to read the article appearing under his name in your issue of August 20. The article, after quoting various percentages, went on to attack the existing syllabus of the Quantities Division of the RICS examinations.

In the opening paragraph Mr. Willis gave certain percentages relating to the 1954 examinations stated to have been derived from "reports current." Does he refer to hearsay or written reports? The writer has not seen the figures quoted by Mr. Willis in the RICS Journal so it is to be presumed that he has access to information regarding examination results not available to the members of the Institution in general. In view of the tenor of his article, presumably Mr. Willis, as a responsible member of the profession, approached and received the consent of the RICS before publishing percentages of such a controversial nature which have not yet appeared in print.

Being human we all have our own ideas on examinations and whilst no doubt Mr. Willis will appear a champion in the eyes of candidates who have not yet "made the grade," I place more confidence in the standards set by the Education Committee of the RICS who have the well-being of the profession as a whole at heart than in the opinions expressed by the writer of the article.

Furthermore, irrespective of examination results, it is obvious that a high standard should be maintained, and any alteration in the syllabus to produce candidates of the right calibre without lowering the standard can, I maintain, be left safely in the hands of the Quantity Surveyors Committee of the RICS, composed of experts fully alive to the conditions prevailing in the profession, rather than pander to one crying in the wilderness.

R. M. WHEATCROFT [FRICS, FIArb]
5, Burlescoombe-road, Thorpe Bay.

To the Editor of *The Builder*

SIR,—The purpose of a professional society is to provide a standard of qualification for principals in private practice so that its members may have a corporate identity and the public interest a protection. The article by Mr. Arthur J. Willis in your issue of August 20, and many later correspondents ignored this purpose.

There is a tendency towards monopoly and concentration in the quantity surveying "profession." Historically, this has been hastened by two factors, one of technique and the other an examination condition, viz.:

(1) The London method (or group system of taking-off) of preparing bills of quantities. This is a high division of labour whereby the measurement of the quantities of a building (i.e., taking-off) is properly shared among a number of principals and the preparation of the Bill (i.e., working-up) from the principals' dimensions is shared among their assistants and students.

(2) The RICS requirement that its student members serve in the offices of practising members so that the students may be trained under the tutorship of the principals.

In time the system has developed for the assistants to do all the work while a steadily decreasing number of privately practising principals have become business executives and mere employers of great numbers of assistants. The trouble with present-day private professional practice is that it is neither private nor professional. To-day most of the quantity surveying work is done on a megalo-commercial basis by a relatively small number of "businesses" employing 80 or so assistants and upwards.

In the megalopolitan money society we live in there is little chance of the newly-qualified quantity surveyor setting up in practice on his own account to exercise his Chartered skill and initiative. Before the war architects had reached this impasse; with more building than ever before it is now the turn of the quantity surveyor to discover the over-night contraction of public and private patronage in favour of what may be called euphemistically the established firms or a little less kindly, "the big shots." Anyone in the building industry who has £100,000 of capital available has the choice of entering either general contracting or quantity surveying. On balance, there is rather more money in quantity surveying.

Against this background we can examine Mr. Willis's comments on the RICS examinations. Mr. Willis laments the low percentage (less than 10 per cent.) of quantity surveyors passing the final examination (for the principal's qualification) compared with other sections of the Institution, and concludes that drastic action is necessary.

At this point, Mr. Willis betrays a confusion of thought and makes an unwitting disclosure. Failure in the examinations, he remarks, is not now of much account to assistants because salaries are not affected, but employers find it a nuisance that their assistants are robbed of energy during the day

and availability for overtime at night by eight years of evening classes and, worst of all, time off is given as a condition of military deferment and only for that reason. The inescapable conclusion is that if quantity surveying students were instructed properly during office hours by their principals and accorded really generous day release for attendance at colleges of further education they would be passing their examinations like football fans at a turnstile.

It is now apparent that the post-entry training and day-release of students of surveying leaves very much to be desired and compares most unfavourably with that, say, for apprentices in the engineering industry.

Mr. Willis's "drastic" solution to the problem of the low percentage of final passes in quantity surveying is for the institution of a special craft certificate for the quantity surveying "workmen" in the form of an associateship based on nine out of the 22 professional subjects (e.g., squaring-out, working-up, taking-off, pulling down, works on site, building construction, "lifemanship," billing and feeing, and squaring-up) with a post-graduate Fellowship based on the remaining 13 subjects. This kind of "solution" would turn the professional student into a narrow technician after the German fashion with a junior technical or at the most, a secondary modern background.

Mr. Willis's proposals are thoroughly reactionary and unsound. He refers ungraciously to the lesser lights in the firmament of professional societies. Between the RICS, dominated as it is by the very few principals in practice, and the "others" largely managed by a group of building contractors' directors there is little to choose. Both belong to the milky-way of latter-day professionalism.

C. R. VINYCOMB.

54, Wickstead-avenue, Leagrave, Luton.

To the Editor of *The Builder*

SIR,—The article by Mr. Willis and the ensuing correspondence pose two very interesting questions :—

(1) How is it possible that a man in receipt of a salary of £1,250 per annum as a taker-off of cathedrals can fail to pass in this particular subject [quantity surveying] in his finals ?

(2) How is it that the number of subjects deemed necessary to qualify a man as a quantity surveyor is steadily increasing ?

The phenomena observed in the first question are very well known in the profession, and on the face of it are most peculiar. It does seem, perhaps, that the steady, ruminative, dissecting and analytical temperament necessary in the good taker-off is the very antithesis of that required to sit down in an examination room and dash off a brilliant paper in quantities. Of course, there are those who have succeeded, but this does not alter the fact that frequently the best taker-off is not the examination-passer.

And yet both Central and Local Government and the various National Boards still ask for an examination-passer when they really want a good taker-off, which necessitates the poor backroom boy taking to his books to spend long years in acquiring the mystic letters ARICS. Yet in public service some of the highest salaries are paid (far more than a taker-off could ever obtain) to committee clerks and administrative officers who have no professional qualifications whatsoever. These employers perhaps have had the good sense to realise that salary should be geared to service and production ability and not to some potential capacity indicated by a professional qualification.

The way to break this vicious circle seems to be to recognise officially the taker-off as a highly skilled technician and to reward him in both salary and status upon his skill. This, in effect, does happen in private practice but not in the public service. We could, in this way, make the post of "taker-off" an end in itself and a desirable end for many.

There are many persons in the quantity surveying profession who delight in the exercise of technical skill yet are not bothered about the "professional angle." Given the full recognition of their skill and freedom of entry to public service they would rest content. Those who are primarily interested in what I call the "professional angle" could proceed to the examinations to qualify for the executive posts either by way of partnership in private practice or principal officer in public service.

The other interesting question—why the number of qualifying subjects is steadily increasing—would seem to be a very definite indication of the growing responsibility of the professional quantity surveyor in building. There has been correspondence published in the past noting this tendency and even suggestions made that the future might see the quantity surveyor acknowledged as the leader of the professional building team. The difficulty with this tendency is that to-day it seems that there is no limit to the diversity of subjects which the quantity surveyor is expected to know and guide others upon.

G. W. BLAIKER.

59, Abingdon-road, Davenport, Stockport.

ARCHITECTS' RESPONSIBILITIES

To the Editor of *The Builder*

SIR,—Referring to Mr. W. MacDonald's letter published in your issue of August 20, I feel he gives this matter a little more notoriety than it deserves. All whose trade accepts responsibility against damage or loss to others must accept the consequences of their mis- and non-feasments. The case quoted clearly reported that the defendant had in part delegated authority to others, possibly in the abstract or merely by his acceptance of their acts which affected his responsibilities.

The defendant might have quoted others as sequence defendants and brought a case against them. This is quite a common course in English law courts. The fact that this was not done makes it appear that he either did not satisfy himself as to the correctness of the actions of those he chose to represent him, or did not delegate the representation he accepted, or was not entitled to delegate agency, or even that no such agency did in fact exist.

The legal aspects of the case do not appear to be more harsh to architects than to other comparable professions. Any agreement can only be varied mutually. Apparently mutual variation was neither sought nor obtained. This is a matter which is rightly viewed seriously by local government authorities who are entrusted with the judicious disbursement of public monies.

Later in his letter Mr. MacDonald expresses an apparent distrust of clerks of works and quantity surveyors. It is as difficult to understand why these two most honourable and important professions should be a bane to him as to how he would dispense with their services if he were commissioned to design and direct a large contract. It is both dangerous to the uninitiated and entirely wrong to make a sweeping generalisation that architects are responsible for the mistakes of clerks of works and surveyors. A considerable amount of explanation is required to qualify the exact circumstances when an architect can be held responsible, such as when he accepts mistakes knowingly or fails to take reasonable action against the commission of mistakes, or against the implementation of actions arising out of mistakes made by others who also have definite terms of reference and duties in the scheme of operations. It would be a sorry state of affairs if Mr. MacDonald's theme of distrustful wariness was to spread to the millions of pounds worth of building and civil engineering works always being carried out. Might I venture to advise that when he is unable to remedy the mistakes of others under his direction by his own action, he should report the matter to the client ?

Concerning the question of contractors preparing their own bills of quantities for tenders, this has been tried but has been found to preclude an essential safeguard of the building owner's purse—competitive tendering. Only one contractor is selected to tender in this manner as a rule, since to seek more than one tender would place an inequitable and unjust burden upon unsuccessful tenderers by reason of the additional costs necessary to prepare the Bills, which incidently would carry no more weight in a court of law than do those prepared by surveyors under seal to building owners or those employed by architects and engineers.

H. E. CAMPBELL [MICW].

40, St. Paul's-road, N1.

PLUMBERS AND REGISTRATION

To the Editor of *The Builder*

SIR,—Considerable fuss was made in the columns of some newspapers recently about an English plumber who, having been charged and fined in Australia for working as a plumber without having the necessary licence to do so, elected to go to gaol rather than pay the fine. The impression was given by the newspapers that the man was the victim of some perverse law which restricted his freedom to follow out his trade.

In actual fact, the authorities were enforcing a law designed to protect the health of the Australian people. The system of licensing ensures that only qualified persons who have passed the prescribed examination are permitted to instal plumbing work to houses and other buildings. This prevents ignorant and uninformed persons from tampering with water supply and sanitation, and enables the authorities to keep a constant check on the standards of plumbing executed by licensed plumbers. It should also be pointed out that the plumber in question, if qualified, would have no difficulty in obtaining his licence. Hundreds of Registered Plumbers from Great Britain have been granted licences in Australia during the past five years.

It is perhaps paradoxical that the compulsory system of licensing in Australia was in the first place inspired by the proposal for similar legislation in this country which has been the objective of this Association for more than 60 years. Such legislation here would prevent the constant repetition of what happened to British plumbing last February.

J. M. HAIG, General Secretary,
Registered Plumbers' Association.

29–31, Euston-road, NW1.

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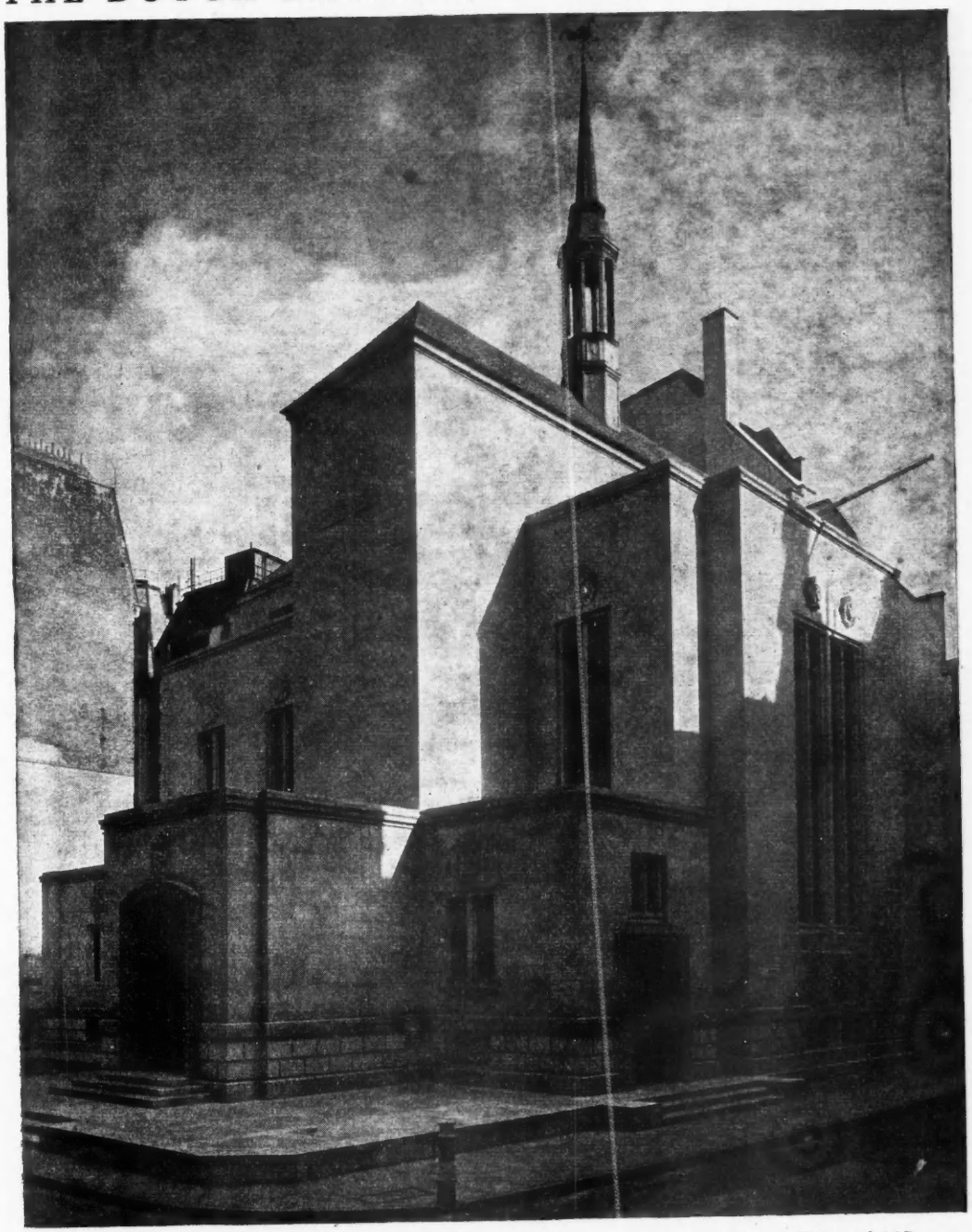

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TENDERING PROCEDURE

An International Survey

THE news that the Minister of Housing and Local Government has recently discussed with representatives of local authority associations matters arising from the report of the Joint Committee on Tendering Procedure, with special reference to selective tendering, adds interest for British readers to the following article (reprinted from the July issue of the "Revue de la Federation Internationale du Bâtiment et des Travaux Publics"). The author of the survey, M. A-P. Ducret, Secretary-General of the International Federation of Building and Public Works, makes clear in his article—a slightly abridged version of which now follows—that the problems of tendering procedure are exercising the building industry in almost all countries.

LEGISLATION in most countries derives from the principle that the corollary to the use of public funds for building is the adjudicating of contracts to the lowest tender. This was expressed in imaginative terms by a French Minister in 1861, who, when speaking on this subject said:—"All business should be dealt with openly, above all when this concerns works and supplies. All undertakings must be allocated under the peoples' eyes under the spur of free bidding. Publicity and competition, here, are, despite assertions to the contrary, the best rules in such matters. It is of the highest importance that the Administration shall escape, not only abuse, but suspicion."

One is bound to recognise that such a principle is undeniably sound but here, as in other fields, matters have evolved, and the exact extent of this evolution is to be found in the following extract from the [Robertson] report, just published in Great Britain, drawn up at the request of the Minister of Works by a Committee of Architects, Contractors, and Chartered Surveyors. The Report opens in stating:

"We find nothing to say in favour of indiscriminate tendering" and continues: "We endorse the view that, when tendering is competitive, it is essential that the competition should, in the case of each contract, be limited to firms who have been carefully selected, according to type and size of contract, as being capable of, and likely to do, work of the required standard."

It will readily be admitted that, during that period of nearly a hundred years, language and spirit have somewhat changed.

But, to continue with this interesting report: "Indiscriminate tendering leads to bad building and throws upon the industry an unnecessary burden of time, effort and expense in the preparation of tenders."

It appears that this point of view is, to-day, common to almost all countries, and it may be said that to a greater or lesser extent, the opinion of the organisations of contractors has appreciably evolved on this subject, since some 20 years. This, however, has not been followed everywhere in so far as public authorities are concerned; there are still many Administrations that hold to the principle of indiscriminate tendering. This is more particularly evident at the level of local authorities, and arises from the desire to avoid any possible suggestion that the authority may not be acting impartially in selecting the firm for the work, or had made a selection having regard to considerations other than professional.

BASIC MODIFICATIONS

Whatever the reasons, we note that many years of experience leads, in almost every country, to two conclusions which are the very basis of a study of the modifications that require to be carried out:

1. Indiscriminate tendering is not to be advocated;

2. It is not certain that the awarding of the contract to the lowest tender is the most favourable practice in the interests of the owner.

Indiscriminate tendering not being recommendable, it is consequently necessary to select the enterprises which are to tender, and it is just here that difficulties begin. Owners and professional bodies agree that contracts must be awarded to enterprises sufficiently well equipped for the job, or who have already carried out works of comparable extent and technical level. The question then arises as to who shall advise as to the competence and capacity of the enterprise selected to tender. On this point, two conceptions must be dealt with.

According to the first, it rests with the owner, and the owner alone, to select the contractor, and in certain countries this point is not contested, not even by the contractors' associations.

In practice, two methods are currently employed. The first is to advertise each contract sufficiently widely to interest a certain number of contractors from amongst whom the owner will make a selection.

The second method is for authorities to maintain lists of firms from which a suitable selection is made, in view of the extent and type of the contract.

In the second conception, the professional bodies state that they are the most competent to advise on the contractor to be selected, and consequently only those put forward by them should be allowed to tender, it being admitted that the professional advisory panel can operate in liaison with public authorities, and even under control of these latter.

It is thus that in France there is a professional advising panel in the building industry, and that in Belgium a procedure of "approval" of contractors has been created, governed by official regulations. We would also mention the case of the countries where the profession [of building] itself comes under regulations, and where it is required to pass an examination, as for example, in Switzerland.

These two conceptions that we have briefly described are not, however, opposed and in practice are complementary. Moreover, it can be conceded that, in fact, the owner, alone, responsible for the use of public funds, has the authority to select the contractor who is to tender. But it may equally well be conceded that he has to select the contractor from amongst those recommended by the professional bodies. In certain countries, the local authorities have in fact accepted this conception, but in others have set it aside.

It is generally the technical, business and financial abilities of the contractor that are considered, and this emphasises the confidential nature of the information that enables either the owner, or professional bodies, to allow a contractor to tender, to set aside a request, or to refuse acceptance. In many countries the local authorities have set up selection panels, or committees charged with sifting the requests for permission to tender, and often the Contractors' Associations have a seat on these panels or committees. It should also be pointed out that there are certain appeal procedures, that may be resorted to by the contractor who has been refused consideration.

The principle of restricted tender in general operation at present involves then the necessity for selection, and it is essential that this selection be backed by the maximum of guarantees. Here, it appears that the opinion of professional Associations is extremely useful, and, to say the least, highly desirable.

RESTRICTED TENDERING

Though restricted tendering appears to be the practice with an increasing number of local authorities, the same cannot be said in regard to the principle of not necessarily awarding the contract to the lowest tender. As a matter of fact, in many countries, the practice of awarding the contract to the lowest tender is not questioned, even by the professional associations. The argument put forward to justify this is generally the following: As the contractors allowed to tender have already been sifted out, it must be considered that all have offered adequate guarantees and, under these conditions, there is no reason why the lowest tender should not be accepted. It is only experience that can tell against such an argument.

Now, what is often seen in practice? It is only necessary to look at a list of adjudications to note that, even in the case of restricted tender, the differences of prices for the same job are such that it is impossible to admit that all correspond to the executing of the same construction, and it is this that, a few years ago, led the head of a big public administration, when talking to some contractors, to say "take the necessary steps to do away with such inexplicable divergences, once and for all."

Most certainly it cannot be claimed that there is one single and fair price for a given work, fully defined. The same work will cost more to one contractor, and less to another. But it does not appear that the margin involved by this consideration is able to justify the divergence of prices remarked in the tenders.

A report made to the St. Gall Institute of advanced commercial studies on

May 18, 1953, by Mr. Jules Paillard, First Secretary to the Swiss Contractors' Association, analysed the problem very clearly. Some extracts of the remarks that he developed are given below:

"If contractors," he said, "do let themselves go and offer freakish prices, it is due to competition and the tendency of owners to adjudicate to the lowest. Prices are not only the result of estimations, but also, to a greater or lesser extent, of a speculation as to the intentions of the owner. The motives of such speculation may be very diverse, as:

"The desire to increase turnover, whatever the cost, and to make a name for a firm for cheapness. with the idea of making it up later. . . .

"The willingness to take on work at any price in the hope that other works, not provided for, will necessarily follow, and that the price of these latter could be made in such a way that, on the whole, the affair will end in paying.

"The certainty, or the hope that in case of loss, or of mishaps the authority will willingly accede to requests for extra payments.

"The desperate struggle of reputedly 'cheap' firms, often cherished by certain authorities, and whose immediate aim is to bring in fresh money for urgent requirements.

"And without going so far, it might just be the desire of a contractor to obtain a first order as an introduction to an owner, from the desire for experience in a particular field, or to make ready for works of the same type that are in view, etc. . . .

"On the other hand, it must always be recalled that the available capacity of a contractor varies considerably from one year to another, despite any conjuncture, and as a result, a contractor may find himself obliged to accept work at no matter what price, or nearly that, solely with the aim of retaining his executives and his workers, and perhaps covering at least the interest on invested capital, without any mention of amortisation.

"Other contractors, full up, will tender all the same so that the owner shall not forget them and will not be surprised by their absence, but will make prices so high that they could not be considered."

Mr. Paillard's remarks are certainly justified in many cases, and then one can but wonder, as he does, if such speculation could not be avoided, if it were made a rule to exclude abnormal tenders.

But here is Mr. Paillard's answer: "So long as a contractor has motives for believing that he will not obtain work unless he is the cheapest, so long as he is convinced that his tender will be considered only if it shows fair dealing, good practice, and is based on good standards and rational organisation, there will always be competitors ready to take on no matter what work at 2 per cent. under the lowest tender."

WHAT IS A "FAIR" PRICE?

Here one puts the finger on the difficulty of determining what is a normal price, a fair price, i.e., in other words, the difficulty of deciding which are the tenders that are to be weeded out. Such a task cannot be entrusted to experts, committees, panels or organisations, for, as Mr. Paillard very justly points out:

"In reality only the head of an enterprise actively engaged in operations, or one who has maintained close and constant contact with the profession can, after a detailed study of the work and the corresponding tender, decide with the least chance of uncertainty if the price appears really to correspond to the probable cost of execution in the given conditions and on the basis of the contract requirements, i.e., if such and such tender may be considered as being in earnest or not."

Diverse solutions have been put forward in the past, which, all or nearly all, appear not to give satisfaction. Adjudication on average price, on arithmetical average, overall, or not, etc. . . . has been thought of. It has become apparent that these systems, in a way mechanical, lend themselves too much to being manœuvred in practice.

However, we shall give here the principles on which the enactments have been drawn up in Switzerland for governing the procedure for awarding of contracts in many federal, cantonal or parish administrations. Apparently, despite some recent controversy, this method is giving satisfaction with administrations and contractors.

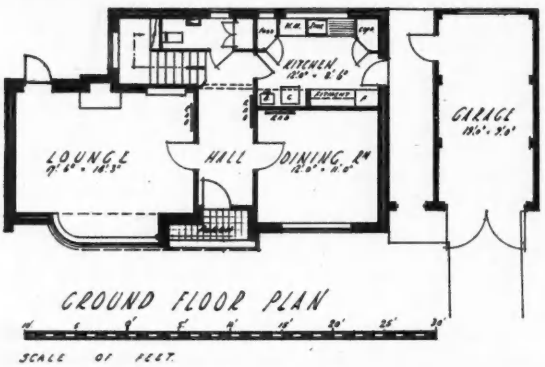
It is conceded in Switzerland that the award shall go to the rock bottom price, i.e., the most favourable price possible for public funds, but which, at the same time, enables the authority to count on an execution in conformity with good practice and the required modalities, and which is consequently capable of ensur-

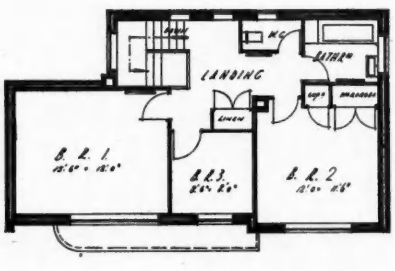
HOUSE AT DORKING, SURREY

THIS house, of 1,270 sq. ft., is built on a plot which slopes up from the road, and to give a pleasing appearance to the elevation an 18 in. soffit is formed over the rendered panel. The external elevations are of Ewhurst multi-coloured stock facings with a recessed joint; the windows are of galvanised steel.

The house is built of 11 in. cavity work with timber-framed roof and first floor. Insulation is provided by "Sizalation" metal foil sarking paper under the tiles and to the inner skin by vibrated clinker blocks. Heating is by open fire and radiators.

The internal finishes generally are broken white ceilings and light cream walls in emulsion paint. Woodwork generally is primrose; the ground floor internal doors are oak faced. The architect was Mr. G. B. Schwinge, AIAS, and the general contractors were Messrs. W. Songhurst (R. Jordan), of Dorking. Sub-contractors were: Roof tiling, Surrey Roofing Co., Ltd.; electrical installation, Buchanan and Curwen; wall tiling, Olbys (Penge); steel windows, Ideal Casements (Reading), Ltd.; block flooring, Damman and Co., Ltd.





ing for the contractor, in consideration of a rational organisation of work, his covering wages, outlay on equipment and materials, and overheads, and an adequate margin of profit, in regard to hazards.

Consideration shall not be given to:

(a) Tenders which show insufficient knowledge of estimations of costs, i.e., obviously priced too high or too low, or appearing to be unfair competition;

(b) Tenders stating a date of completion impossible under normal conditions of respect for employment regulations;

(c) Tenders which obviously do not take into account risk of accidents, and general safety measures, as well as those for particular cases.

Moreover, the professional associations are allowed access to the tender documents, and all drawings, etc., concerning the tender are made available for their inspection.

DETERMINING A "FAIR" PRICE

In order to facilitate the determining of a fair price, the interested professional association is empowered to submit to the authority, within the time allowed for tendering, a "normal" tender that could be taken as a basis in adjudicating. If, in this case, the authority envisages, eventually, giving consideration to a tender, or tenders, notably under the "normal" tender (i.e., over 10 per cent.), and if the professional association is opposed to this, the authority beforehand will request the tenderers in question to submit, for the main items of the tender, the analyses justifying their costs. The professional association will then be given the opportunity of stating its opinion of the estimates, and of justifying its own.

In assessing prices, account will be taken of advantages, duly substantiated and justified, from which such and such tenderer could benefit, in the particular case.

If, on a big contract, agreement is not reached, the authority can, prior to adjudicating, nominate neutral experts to check the prices. In any case the final decision rests with the authority, in conformity with regulations in force, and with regard to all particular circumstances.

Evidently, the enforcement and practical application of these regulations presumes the existence of certain conditions affecting both the authority and the professional associations. In fact, the essential co-operation of these two can be ensured only in a climate of mutual confidence and respect.

We consider that this example is worthy of mention: it concerns regulations that have been in force in Switzerland for 30 years and that, in practice, have always given satisfaction both to the authority and the contractor in that country.

TYPES OF CONTRACT

Mention may be made, also, of the creation in France of a "reserved" field, in which the Ministry of Reconstruction and Housing is empowered to put out for tender, under particular conditions, the contracts for 10,000 flats per year for five years, without necessarily awarding them to the lowest tender. We have also reason to believe that the London County Council has undertaken a similar experiment in the case of big sites.

One of the most important points concerning adjudication is that of the right type of contract for the particular project. In this matter the following types are to be noted:

(a) Fixed price contract.

(b) Price schedule, with Bills of quantities.

(c) Value cost contract, plus either a percentage of cost, or a fixed fee.

The Robertson Report has the following comments to make on this subject: "The most satisfactory type of contract, from every angle, is the fixed price contract, since this is the only method which makes it possible for the building owner to secure the full economic advantages of effective competition."

This point of view appears to be shared by almost all public authorities, consequently it will not be useful to deal further with this here.

The fixed price contract can be used only when plans and particulars are complete. This method cannot be applied, notably, when available information does not allow of preparing accurate bills of quantities. In this case the schedule contract, based on approximate bills of quantities is useful. Accurate bills of quantities may be substituted at a later date for the approximate bills, or alternatively the work may be measured as it proceeds. Such a type of contract should only be used for maintenance work.

On the other hand, the method of schedule with accurate bills of quantities has the advantage, to quote the Robertson Report "of bringing the architect, quantity surveyor and contractor together for consultation at an early stage, where each can draw on the other's experience."

Cost Plus either percentage or fixed fee Contracts have, at present, a tendency to being taken up in several countries, with a marked preference for the second formula. There are, moreover, numerous variants of these methods of which the main drawback is, in our opinion, the necessity for a highly-trained and special organisation within the employing authority. We would mention, as an example, the Value Cost contract operated by the London County Council. Here, 3 per cent. of the value arrived at in applying the schedule prices to the work done, is added to the costs.

VARIATION CLAUSES

There is a particular point on the subject on which we find a noteworthy remark in the Robertson Report, and it is that concerning the variation clauses inserted in contracts: "All will agree that this clause should be dispensed with as soon as practicable, because this would give contractors the incentive, which existed in pre-war days, to buy in the cheapest market, and would, therefore, do much to incite manufacturers and merchants to make further efforts to reduce their prices. It would, moreover, do much to restore the confidence of the small building owner who is at present so often deterred from risking his limited resources by uncertainty as to final commitments."

It is in this spirit that, despite difficulties inherent in the economic situation that, mostly, are due to national decisions on taxation, and decisions to increase wages in such industries as transport, fuel and power, the National Federation of Building Trades Employers of Great Britain have agreed that the Clause should not be used in the case of works estimated to cost less that £3,000, with an estimated contract period not exceeding four months.

There is scarcely need to mention that tender documents should be as complete as possible. Comparable tenders can only be obtained if these documents are sufficiently clear, and this will show just how desirable it is that tender documents should include plans and specifications conceived in this spirit. Moreover, it is necessary for the anthority awarding the contract to make available the architect's representative to explain the drawings, etc. . . .

The utility of appending to the tender documents bills of quantities, made out by the architect, has often been discussed. It has been claimed that this document is unnecessary, since each contractor will be obliged to determine the quantities for himself from drawings or specifications supplied him, the architect practically never accepting responsibility for the quantities on the documents appended to the tender. Moreover, a sufficient time should be allowed for preparing tenders and this time should never be less than 21 days as from time of receipt of tender documents.

As to the number of tenders, in the case of restricted tendering this depends, of course, on the size and type of contract. For certain very large and important jobs, or of a very particular technical nature, the number of tenders could be greatly reduced, from the fact that the firms capable of executing the work are few, and on the other hand must have the available capacity.

We are again quoting the Robertson Report giving the schedule used by the Ministry of Works in Great Britain:

For contracts below £500	Four firms,
For contracts between £500 and £10,000	Six firms,
For contracts between £10,000 and £50,000	Eight firms,
For contracts between £50,000 and £200,000	Ten firms,
For contracts over £200,000	Twelve firms.

It is necessary besides for tenders to be accepted within a reasonable time, and for sufficient time to be then allowed before the contract actually starts. Furthermore, the all too prevalent practice by authorities of delaying, or more frequently of withholding the advising of results of tenders is to be condemned. Such notification, in our opinion, should in any case be made, and at the earliest possible moment.

LINES FOR STUDY

Such, we consider, are the main lines for any study that is to lead to an improvement, a modification even, of present methods of adjudicating in many countries. All the problems, moreover, have not been dealt with above, and there are even some that have not been touched on at all, and yet are worthy of very close study.

We would, however, as a reminder, mention the attitude taken up by local authorities and professional organisations on the awarding of tenders to the general contractor, or in lots to the trades. In most of the big industrial countries the established practice is that it should go to the general contractor, and this is the rule for big jobs in the United States, Great Britain and Germany. On the other hand, in other countries, such as France, it appears that the professional organisations of the industry are, on the whole, against this practice, and prefer consequently to see the work allotted to the various trades.

There is also the very important question of sub-contracts, a question linked to the preceding since it concerns contracts assigned by general contractors to the various trades. It would again be necessary to tackle the problems concerning the consulting engineers and the organisations charged with inspection, in order to clearly define both the conditions of their intervention and their liabilities in the execution of the work.

SOLUTIONS

Finally, it would be necessary to study particular solutions of these various problems as adopted in certain countries, where regulations appear to have given satisfaction to the architects as well as the contractors. The Swiss method of estimates, notably, appears to us worthy of considerable interest, for it has been subjected to a prolonged trial, and has unquestionably given good results.

Our desire has been primarily to give a general idea of this problem, which is amongst the most important and the most difficult to resolve, trusting that this will provide matter for fruitful reflection. The International Federation of Building and Public Works intends to take up this study at its coming meetings, and hopes, in this work, to be able to bring out some guiding principles capable of helping the professional organisations to improve the present system, in so far as this appears possible.

OBITUARY

Edward G. Wylie, CBE, MC, FRIBA

We regret to announce the death of Mr. Edward G. Wylie, CBE, MC, FRIBA, senior partner in the firm of Messrs. Wylie, Shanks and Wylie, architects, of Glasgow. He was 69.

A native of Glasgow, Mr. Wylie studied at the Glasgow School of Architecture, and was articled to the late Mr. W. F. McGibbon, of Glasgow. In 1905 he won the RIBA silver medallion and in 1907 became assistant in the office of the late Sir John James Burnet. Five years later he set up in private practice with Mr. Alexander Wright. He served with the Durham Light Infantry in the First World War, and won the MC and bar.

Mr. Wylie resumed practice in 1919 and two years later won the competition for the design of Hillhead High School, one of the most important Glasgow high schools. Further success came his way in 1927 when he won competitions for the Scottish Legal Life Assurances Society's head offices at Bothwell-street and for the Glasgow Dental Hospital. His other important commissions have included the Lennox Castle Institution at Lennoxtown and many commercial, hospital and school buildings.

He was awarded the CBE in 1949, and was a past-president of the Glasgow Institute of Architects and a past-deacon of the Incorporation of Bonnetmakers and Dyers of Glasgow.

In 1937 Mr. Wylie was appointed chief consulting architect to Scottish Industrial Estates, Ltd. The firm are also consultants in Scotland to Scottish Oils and Shell Mex, Ltd., and are the architects for the Scottish Industries Exhibition, which opened on September 2 in the Kelvin Hall, Glasgow.

LONDON PLANNING AUTHORITY APPEAL

Height of New University College Building

AN appeal was heard at the St. Pancras Town Hall, on August 12, before Mr. S. Knight, FRIBA, MTPI, an inspector appointed by the Ministry of Housing and Local Government. The case of the appellants was submitted by the Provost of University College, who called as witnesses Major-General Birks, Professor H. O. Corfiato, architect for the Biological Sciences block, Sir Patrick Abercrombie, Professor G. L. Brown and Mr. John Swarbrick, as daylight specialist. The case of the planning authority was submitted by Mr. J. P. Camp, solicitor, who called Mr. B. C. Paul, town planning officer.

The Provost stated that objection had been taken to the erection of the sixth and top floor of the proposed biological sciences building, owing to alleged serious infringement of daylight in the rooms of residential buildings on the opposite side of Gower-street. The sixth floor was, he explained, an essential part of the structure and was set back behind the building line so as to cause as little interference with the access of light as possible. Professor Corfiato gave evidence in detail regarding the whole of the circumstances, including accommodation, plot ratio, etc. He also called attention to higher buildings used for commercial purposes in Gower-street, to the erection of which the planning authority had not taken exception, he said.

Sir Patrick Abercrombie took the view that Gower-street was in a state of transition, quite distinct from permanently residential areas. He regarded Gower-street as one in which the permissible angle of obstruction from the opposite side of the street should be 51 degrees. A plot ratio of 3.5 to 1 was suggested as appropriate for the entire area of the College site and 5½ to 1 as appropriate for net building area. He referred to a college building in the USA with 20 storeys.

The next witness was Mr. John Swarbrick, who demonstrated by means of projections that at table height on the ground floor of residential buildings on the opposite side of Gower-street, 7 ft. from the outside face of the external wall, the loss of daylight, in consequence of the erection of the recessed sixth storey, would be 0.19 per cent. daylight factor, a loss so small that it would not be noticed by normal occupants of the room. This he considered was much too trivial to form a justification for mutilating an educational building of national importance.

The Minister's decision will be announced.

DEVELOPMENT VALUE LOSSES

Company's Appeal Dismissed

AN appeal by Eborall Estates, Ltd., against the district valuer's assessment of "loss of development value" on 70 acres of land adjoining the east side of Aldridge-road and the north side of Bridle-lane, Streetly, which the company had planned to develop as part of a scheme for a "Streetly garden city," has been dismissed by the Lands Tribunal. Costs on High Court scale have been awarded against the company.

Mr. H. G. G. Nichols, Clerk to Aldridge Urban Council, stated that the planning authority had set aside part of the estate as a green belt, which meant that the company could not carry out further development on that land. The company therefore laid a claim for loss of development value, which it estimated at about £36,000. The district valuer assessed the value at about £12,000.

According to an official statement, development of the estate commenced in 1945, and between then and the end of 1948, 41 houses were erected on existing frontages on the west side of Aldridge-road and in Bridle-lane. During 1947 and 1948 the company was successful in disposing of 147 plots of land in the rear of the existing frontages which had been recently built upon, but no further houses were built owing to the lack of building licences for private development which existed at that time.

The appellants called as expert witness R. E. Steeds, of Couchman and Steeds, chartered surveyors, Birmingham, who contended that the loss of development value in the appeal site was the sum of £36,250, based on an unrestricted value of £40,500 and an agreed restricted value of £4,250. The Central Land Board called as their expert witness Mr. G. L. Kirk, district valuer for Birmingham (2) district, whose valuation as determined by the Board was a loss of development value of £11,550 based on an unrestricted value of £15,800, and restricted value £4,250.

The appellants' valuer based his valuation entirely upon the price at which the company had disposed of the plots on the first section of the estate, but the district valuer discounted these sales and claimed that the methods adopted in selling the plots had resulted in an artificially inflated land price. Further evidence was given on behalf of the Central Land Board by four plot-holders, including the Streetly Garden City Plot-holders' Association, a body formed early in 1949 from among the purchasers of plots.

In the award, the Tribunal dismissed the appeal and awarded costs on High Court scale against the company. The award stated: "I find the conclusion inescapable that the people who bought plots from the appellants in 1948 were attracted not so much by the desire to possess a building plot as by the prospect and the hope that the purchase of a plot would result in a house being available within a reasonable time. The large sum, £27,400, which the appellants were able to garner for 147 plots was, I think, attributable far more to their own energy and business acumen than to any sound prospects the purchasers had of getting houses, or to any particular quality inherent in the land which Eborall Estates, Ltd., were endeavouring to sell, which was not possessed by much other land in the neighbourhood."

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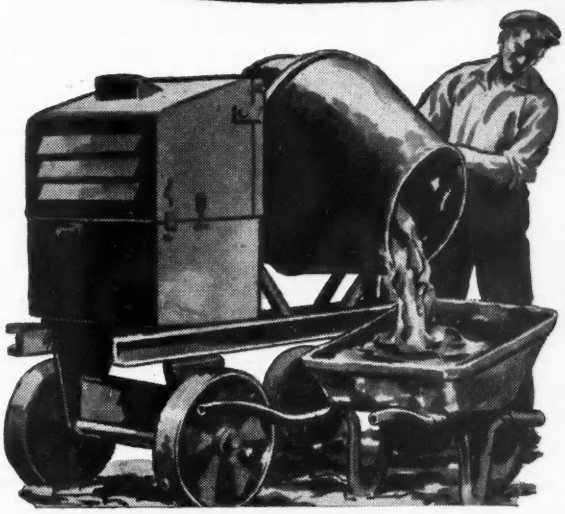

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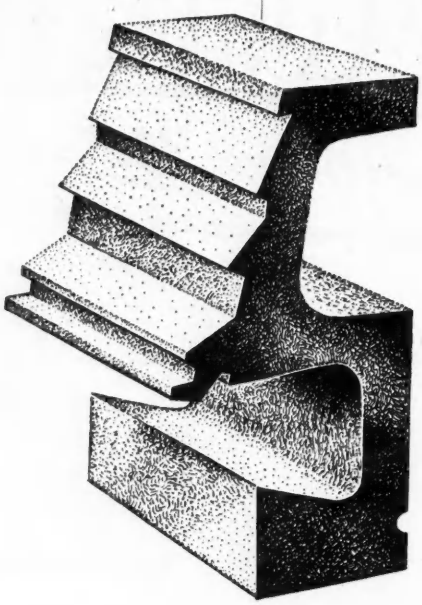

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B *Pre-fabricated Rocker-Chock?*

C *Unexploded Political Pensioner?*

D *Manufactured Meteorite?*

E *Woozel Grommet-Block?*

F *An hallucination?*

G *Polynesian Plonka-Plectrum?*

H *Finlock Sprocket Block?*

I *Contemporary bust of Garibaldi?*

J *A Bricklesham's Bi-furbicated Bed-brick?*

K *An Easter Island Sculpture?*

Whodunit?

A *The Complicated Concrete Company?*

B *An eggbound Pterodactyl?*

C *A Sculptor of ill repute?*

D *An eaves specialist of good repute?*

E *M.I.5?*

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DHB

Town and Country Planning Summer School

NEW PROPOSALS IN 1954 PLANNING BILL

THE effect of the Town and Country Planning Bill, 1954, on the control of the use of land, was the subject of a paper given by MR. HENRY W. WELLS, FRICS, at the Town and Country Planning Summer School at St. Andrews University, on September 3. In the first part of his talk, Mr. Wells reviewed the Bill and the Town and Country Planning Act, 1953, in historical perspective, making some general comments on both, and then proceeded to give an explanation of the new proposals contained in the Bill. His remarks in connection with the new proposals were as follows:—

The Bill, and the 1953 Act, which are really one operation, can be regarded as "denationalising" measures. It is curious that in the second reading debate, little emphasis was given to this aspect. The first principal intention is, nevertheless, to encourage private enterprise development of land by handing back to the landowner the development value which the 1947 Act attempted to transfer to the State. The second is to retain the existing use price on compulsory acquisition plus the 1947 development value if a Part 6 claim had been agreed under the 1947 Act. The third general intention is to pay compensation on the basis of 1947 development value (*i.e.* claims agreed under the 1947 Act), if a planning refusal or restriction goes beyond the conception of "good neighbourliness."

In pursuit of these general intentions the Bill and the 1953 Act, taken together, have the following provisions:—(i) The abolition of development charge. (ii) The repayment of development charge up to the amount of an agreed Part 6 claim. (iii) Payment of Part 6 claims where an interest in land has been compulsorily acquired at existing use value. If the land has been sold or leased in the open market below the full development value between August 6, 1947 (passing of 1947 Act) and November 18, 1952 (when the Government intentions were published) the claim is met to the extent to which the price fell below its full value.

(iv) Various other payments, not necessarily the full amount of the Part 6 claims, are to be made, for example, to claim holders if claims have been purchased, or to persons who bought or leased land on terms which included development value from owners who retained their Part 6 claims. (v) Compensation up to the maxima established by Part 6 claims where past planning decisions had depreciated the value of land.

"UNSCRAMBLING" PROVISIONS

These "unscrambling" provisions all deal with events which have taken place in the past. In this paper I am more concerned with those provisions which deal with future events, for it is these which will have an impact on the control of land use. But perhaps in passing I should mention that the Minister has the right to review past planning decisions which give rise to a claim under the unscrambling provisions.

The provisions dealing with future events fall under two general headings:—(a) Compensation payable on planning refusal, or on grant of permission subject to onerous conditions. (b) The price at which land will, in the future, be acquired compulsorily. These provisions need to be considered in greater detail.

Compensation on planning refusal or grant of planning permission with onerous conditions.—The basic principle adopted by the Bill towards the payment of compensation following a planning refusal or the equivalent is that compensation shall not exceed the development value agreed for the purpose of a claim under Part 6 of the 1947 Act, less such payments as are necessary to meet the "unscrambling" provisions, or have been made in respect of any earlier planning decision.

In order to implement this principle, the draftsmen of the Bill had the difficult task of finding a formula by which Part 6 claims would become attached to the land in some way or another. Part 6 claims were, under the 1947 Act, personal property, capable of being sold separately from the interest in land by reference to which they had been assessed. The Bill's attempt to use claims assessed for one object for entirely different purposes is the principal reason why it is so complicated. The Part 6 claims were representing the development value of particular interests in land of which there may be several in one piece of land. Furthermore, lesser interests (*e.g.* leases) might cover only a part of the land of the greater interest (*e.g.* freehold). But at the time of a future planning refusal there may be entirely different interests and different owners.

Towards meeting these difficulties, the Part 6 claims are, in effect, separated by the Bill from their original owners and attached to the land so as to be available, if need be, to persons currently holding interests in the land, after the various payments are made to meet the "unscrambling" provisions. The claims, of course, must completely change their character in the process.

THE FORMULA

The simplest way of describing the formula which has been evolved to bring about this metamorphosis is by illustrating the effect of the Bill by means of a hypothetical example.

Let us assume that Jones was the freeholder of a site, part of which was let to Smith, whose lease expired in June, 1954. Jones had agreed a Part 6 claim in respect of his freehold interest at £1,000. Smith had agreed a claim in respect of his leasehold interest at £150. Jones sold, in 1949, the freehold of that part of the site which was not let to Smith, to Robinson, who paid full development value and had assigned to him an appropriate part of the Part 6 claim. Robinson obtained planning permission, paid a development charge of £700 and built himself a house. In 1955, after the Bill has become law, Jones, who by then has possession of the part previously let to Smith, applies for permission to develop it but is refused. What procedure does the Act envisage for returning Robinson's development charge and compensating Jones in respect of his planning refusal?

The provisions of the Act are applied in these assumed circumstances in the following three stages:—

First, Jones's original "claim holding" of £1,000 is apportioned so that an appropriate fraction, say £600, is allocated to the land purchased by Robinson, and £400 to the part retained by Jones. Robinson is therefore "claim holder" for £600, and Jones for £400. Of the development charge of £700 paid by Robinson, £600 only will be repaid, this being the upper limit of the claim holding attached to his land. Robinson has no automatic right to any refund unless he is a claimholder. So much for unscrambling the past happenings. These have to be settled before the future events can be considered.

Secondly, you will remember that Jones has a claim holding for £400 in respect of his land, permission to develop which has been refused. Also Smith, whose lease has expired, still has a claim holding in respect of the same land of £150 although he can get no benefit from it. The £150, however, is added to the £400 to make the "unexpended balance of established development value" on this land £550 (£400 plus £150). This represents the maximum total sum available, for all time, towards meeting any compensation due as the result of a planning decision or as a supplement on compulsory purchase. Jones can only therefore expect compensation of £550, or less if the actual loss he suffers as a result of the planning refusal is less.

COMPENSATION CLAIM

Thirdly, Jones's troubles are not yet at an end for, under the Bill, no compensation will be payable if, on a refusal, planning permission is, or would be, granted for other development of a residential, commercial or industrial character. Furthermore, as his land is the subject of a claim and a planning refusal, the Minister has the right to review the planning decision before authorising the payment of compensation which is out of Treasury funds.

He may grant permission for the development applied for, in which case the compensation claim naturally disappears, or he may suggest an alternative development which would reduce or remove the compensation liability. This Ministerial reservation was criticised in the House of Commons. The Minister, however, gave this assurance: "It is not" he said, "my intention, nor is it the intention of my right hon. friend, the Chancellor of the Exchequer, that decisions about the right use of land should be governed by the cost of compensation," and the Attorney General pointed out that one of the justifications for this provision is to deal with claims arising from bogus applications to develop.

If in the example just given, Jones received an absolute refusal after the Minister's review, the probability is that he would get some compensation up to the maximum of £550. But the effect of adopting the principle of no compensation if a restriction is imposed in the interests of good neighbourliness is that under the Bill very few restrictions attached to a planning permission and, in no circumstances, refusal to change the use of land or buildings will justify compensation. Thus for all practical purposes one can say that payment of compensation is limited to an absolute refusal to

development consisting of building, engineering or mining operations.

I should add to this brief summary of the compensation provisions for planning restrictions that no compensation is payable if the planning application is premature, but payment of compensation cannot be deferred on this ground for more than ten years after the first "premature application." The Bill lays down that a planning application is premature if development of the kind proposed is in advance of the stages indicated in the development plan or if there are insufficient public services. So much for a very outline indication as to how the provisions of the Bill operate on a refusal of permission to develop.

SPECIAL CASES

Compensation for compulsory acquisition of land.—The principle adopted towards the payment of compensation for compulsory acquisition of land is a fairly simple one. It is existing use value plus the "unexpended balance of established development value," if any. Thus, in the case of Jones, the compensation would be existing use value plus £550 if freehold land had been compulsorily acquired. The £550 is paid by the acquiring authority, not the Treasury. If Jones had no unexpended balance, the compensation would normally be existing use value only.

The Bill, however, takes ten pages to elaborate on this simple principle because there are several sections which deal with special cases. We need only be concerned with the most important. This is a provision which enables a prospective purchaser of property to ensure that should it be compulsorily acquired within the following five years, the value of any planning permission attached to the property when he bought it will be taken into account in assessing the compensation.

The risk of subsequent compulsory acquisition, at existing use value only, would, without doubt, deter many potential developers from buying land, and in the end stultify development. The Bill therefore seeks to provide the necessary assurance, by enabling a prospective purchaser to obtain from the local authority a written intimation whether or not the council propose to acquire the land within the next five years, or whether the council have been informed that some other public authority wishes to acquire the land.

If there are no such intentions and the applicant completes the purchase within three months, the value of any planning permission attaching to the land will be taken into account in assessing compensation on any compulsory purchase initiated within the subsequent five years.

CONCLUSION

After some further remarks on possible ways in which the new scheme may effect the control of the use of land, Mr. Wells summed up as follows:—

I would not wish it to be thought that I do not appreciate that it is early days to have opinions as to how this new legislation will work out in practice. Nor would I wish you to think that I am only critical.

The Bill has, in my view, some good points. The energies of the private developer, which were to some extent bottled up by the development charge provisions of the 1947 Act, have been released. The Exchequer has been saved a considerable outlay. These aspects are outside the title of this talk. It is even more dangerous for me to attempt a forecast as to what changes in the law the future may bring; for these are likely to be decided in the ballot boxes at future elections.

Nevertheless, it is a reasonable surmise that if, politically speaking, the country keeps to the right, the inequalities of treatment between one landowner and another, which is the most obvious defect of the new scheme, will be ironed out by a further freeing of property values—perhaps to the extent of compulsory acquisition and planning compensation at market values, which would, of course, increase the cost of planning.

A COMPROMISE

If, on the other hand, the country goes left, we can, I suggest, expect a greater control of property values by some new scheme of betterment taxation, or as a more remote possibility the "nationalisation" at existing use value of all land to which planning is adding betterment. The sequel to the latter might well be the public acquisition of all land zoned for development or redevelopment. This would also iron out the inequalities between landowners but in a somewhat different way. Such a scheme need not, however, mean the end of development by private enterprise. But these are long-term guesses.

Meanwhile the present Bill has been acclaimed as a compromise. "All government," said Edmund Burke, "indeed every human benefit and enjoyment, every virtue and every prudent act, is founded on compromise and barter." While it must be accepted that the Bill is an attempt at a compromise it is a great mistake to think that we have found a solution that will work either in the sense that it will stand the test of time, or that it will assist, or at the best, not adversely affect the proper control of the use of land. It will certainly not seem fair to the landowners. Let us also realise that in this matter the essence of a compromise is that neither the planners, nor the local authorities, not the public, not the landowners, nor the Treasury should feel entirely satisfied.

RURAL LAND POLICIES

Another paper read at the Summer School, by DR. G. P. WIBBERLEY, BSc, dealt with rural land policies in an urban Britain.

ILLUMINATED ADVERTISEMENTS

Birmingham Planning Appeal

THE question of whether or not large illuminated advertisement signs detracted from the architectural amenities of the centre of Birmingham was examined at a town planning inquiry at the Council House, Birmingham, on August 25, into an appeal by London Signs and Illuminations, Ltd., against a refusal by the Public Works Committee, acting as the local planning authority, to allow the erection of a neon wine advertisement outside the second and top floor windows of premises at the corner of New-street, and Corporation-street, tenanted by Messrs. Greaves, Ltd. The appeal was heard by Mr. K. A. Braden, inspector to the Minister of Housing and Local Government, who closed the inquiry and inspected the site.

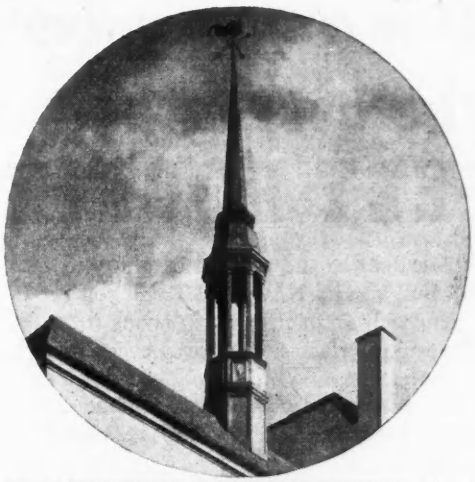
MR. F. S. BRIDGES, for the local planning authority, argued that the proposed sign would overload the building with advertising matter, would detract from its architectural appearance to the detriment of the amenities of the locality, and might distract the attention of pedestrians and drivers and so constitute a source of danger at a busy junction. He added that most of the buildings making up the frontages of the shopping streets in the city centre had a dignified and pleasing appearance, and, acting in the discharge of their functions under the advertising regulations of the Town and Country Planning Act of 1947, the Public Works Committee had endeavoured to maintain and preserve the architectural character of these buildings. The Committee considered that generally such buildings should not be used for the display of large illuminated signs, particularly above the fascia level, he said, and they felt that unless this policy were maintained a general deterioration in the amenities of the city centre would result.

MR. A. M. LYONS, QC, for the appellants, pointed out that there had been a sign in the position for a quarter of a century, and that as recently as 1950 a sign advertising an electrical concern, nearly of the same size but containing three times more footage of neon tubing, had been licensed for three years. The sign was too high to catch a driver's eye and the circumstances had not changed since.

MR. BRIDGES replied that the local planning authority did not accept the contention that because they granted consent to a sign in that position in 1950 they were obliged in 1954 to grant this application. Views changed with the passing of time, and what had been unobjectionable in 1950 was not necessarily unobjectionable now. Indeed, the advertising regulations of the Act had recognised that views in connection with advertising control might change, since they provided that consents were valid for a period of three years, after which time they came up for review.

MR. LYONS complained that when the Corporation purchased the property concerned, and the Estates Department negotiated a rent of £2,000 a year with Messrs. Greaves, Ltd., in December, 1952, they had recognised and continued the then existing advertisement lettings. MR. BRIDGES explained that the negotiation of rents was not a matter for the Public Works Committee and when dealing with this matter they did not have the matter of rent in mind.

MR. P. GOODE, chief assistant in the Town Planning Department, called as a witness by the Corporation, agreed that when the Public Works Committee considered the matter they were unaware of the conditions of the lease. MR. LYONS commented that when the situation was discovered he thought it would have been magnanimous of the Corporation to have withdrawn objection to the advertisement.



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LEFT:

ABOVE: ROOF-TURRET

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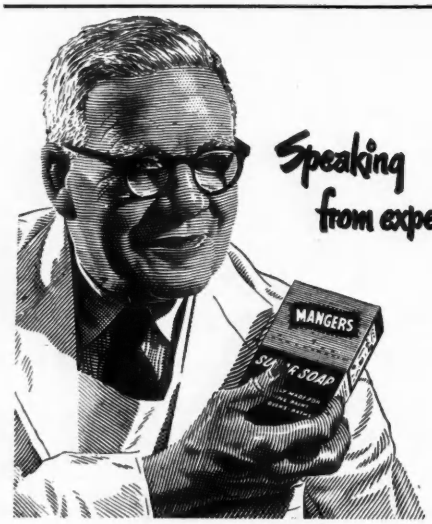

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American Housebuilding in Transition

1.—GROWTH IN PRODUCTION

AN important book on the American housebuilding industry, by Mr. Sherman J. Maisel, entitled "Housebuilding in Transition," has lately appeared in this country (University of California Press. London: Cambridge University Press, price 37s. 6d. net). Based on studies in the San Francisco Bay area during 1949-50, it gives a comprehensive survey of the American industry in all its ramifications. It shows that some of the charges of inefficiency which have been made against it in recent years are justified, and indicates the lines along which improvements in structure, organisation and performance are likely to be found. Though the problems of the housebuilding industry in this country are by no means identical with those of the United States, they have much in common in matters of organisation and production, and the book is therefore one of considerable interest to the British reader. With the courteous permission of the University of California Press we propose to publish during the next few weeks some extensive extracts from the book. The first article appears below.—Ed.

IMMENSE growth nationally in production of housing marked the decade 1940-1949. This vast increase in volume created significant changes in the structure of the housebuilding industry. During this decade, between 8,000,000 and 9,000,000 dwelling units were added to the nation's housing inventory. Between 6,000,000 and 7,000,000 were newly constructed units, and the rest were conversions and marginal additions to the supply. This record stands in dramatic contrast to the inventory change for the period 1930-1939, when the increase was about 5,000,000 of which 2,730,000 were newly constructed units.

The important story told by these figures is that the rate of building of new dwelling units was approximately 2½ times as rapid in 1940-1949 as in 1930-1939. The same story of increase is told by the figures for the terminal years of the two decades. In 1939, 515,000 dwelling units were started, whereas in 1949 the number was more than 1,025,000. The increase was large both relatively and absolutely.

The gain in production in the 1940's was not spread evenly throughout the period. Under the impetus of the defence economy, large gains in housebuilding had been made in 1940 and 1941, but when the war started, housing was cut back to such a degree that 1944 was one of the lowest years ever recorded. The low level continued until the war ended. Then, of course, there was a tremendous upsurge. In the year 1946, housing production was almost quadrupled. Further gains of 10 to 20 per cent. were experienced annually through 1949, and another sharp increase amounting to 35 per cent. took place in 1950. More than 60 per cent. of the decade's new construction was concentrated in the last four years. One striking statistic sums up this production boom: more houses were built in America in the five years from 1946 to 1950 than had been constructed in the entire preceding 15 years.

The enormous increase in production—when war's end made production possible—to meet the acute demand altered the cost structure as well as the type of markets and the organisation of firms. The effect on costs and prices was naturally inflationary. Building cost indexes, which are based on weighted averages of quoted materials, rose by approximately the equivalent of the increases of wholesale prices in general.

The estimated cost of one-family dwelling units actually constructed increased somewhat less than the change shown in the cost indexes. It rose from $4,000 for the average one-family unit in 1939 to $7,625 in 1949, or 90 per cent. compared with 108 per cent. for the price index. This difference may reflect either a change in size of the units built in the two periods or, perhaps, a change in efficiency.

Even more important than its effect on cost structure was the effect of the increased rate of production on builders' size and methods. What has emerged from the war and postwar periods is the large-scale operative builder. War experience gave the initial impetus to the growth of the big merchant housebuilding firms. Although the war imposed a decrease in the amount of housebuilding, that which did take place was more concentrated among the larger firms than it had been in the past. Builders who could work with government agencies in obtaining permits, priorities, and contracts were able to augment greatly their dimensions of operation. Problems of financing and marketing which had plagued them and kept them small in the prewar period were removed through the receipt of government aid and a ready-made market. Although the war ushered a large number of firms out of the industry through its restrictions and regulations, it abetted the growth of many which were able to hold on. Among the advantages gained by those firms which remained and grew was the opportunity to experiment with new techniques based upon their increased scale. Those who built at all had a ripe market of war housing demand, and, aided by the government, they built on a grand scale.

These advantages were carried over into the post-war period. The initial situation which gave momentum to the growth of the large firms was altered only in degree. A huge backlog of demand, aided and increased by government-guaranteed and insured credit, eliminated most of the pre-war marketing and financing problems. The financial position of many firms had improved as a result of the war. They had more capital. The assured market, together with definite government commitments to insure loans on completed houses, greatly eased credit problems. Builders who had been active during the war had gained experience with larger operations and knew the advantages to be gained from increased size as well as the techniques necessary for successful large-scale operations. Other builders observed their success, recognised the new opportunities, and hastened to exploit them.

AMATEUR BUILDERS

Housebuilding is an exception among major American industries in that a significant proportion of all houses built in the United States are constructed by individual households or non-professionals. The day when families can build their own shelter has not yet passed in this country, frontierlike as that may sound in a machine-age culture.

In 1949, more than a fourth of all privately financed non-farm dwellings started in the United States were built by amateurs. These owner-builders numbered 265,600 and built approximately an equivalent number of units, or 33 per cent. of all houses constructed. The prevalence of owner-builders is much greater in non-metropolitan than in metropolitan areas. Sixty-four per cent. of the owner-built units were constructed in the non-metropolitan areas, whereas these same areas accounted for less than 35 per cent. of total housing production. The preponderance of the owner-builder pattern in the country, rather than the city, is illustrated by the fact that in non-metropolitan areas 60 per cent. of the houses are built by owner-builders; in metropolitan areas only 18 per cent. are put up by owner-builders.

In the metropolitan areas, there were 96,000 non-professional builders. This means that there were nearly one and one-half times as many amateur builders as there were active firms in these areas, although the amateurs accounted for less than one-fifth of the total units produced.

In the Bay area, two-thirds of these "home-made" houses were built by people with no relation to the industry whatsoever. They were primarily amateurs who read a book or had a friend with some experience and set out to build their own homes. The remainder of these houses were built by craftsmen whose jobs and skills were related to the industry—maintenance carpenters, building inspectors, or mechanics working for others, who frequently used their own time to build for themselves.

Usually individuals built in their leisure hours—week-ends, vacations, or after work. Six per cent., however, put in full-time on the job. Most of the non-professionals did a large part of the basic work, assisted by their families and friends, but they sub-contracted plumbing, electrical work, and sometimes other specialities. In 12 per cent. of the cases, they merely acted as general contractor and supervisor, hiring carpenters, sub-contractors and labourers.

In turning from general contractors, on the one hand, and owner-builders, on the other, to the housebuilding industry as an entity, we find that professional housebuilding firms are divided into two principal types—the contractor and the merchant or operative builder. In the public mind, the small housing contractor is the symbol of the housebuilder.

He is the man who builds on a lot which the owner has bought, builds to a design which the owner has selected, accepts payments for his work as it is installed in the house, and risks very little in terms of decisions or capital. The public has given comparatively little thought to the merchant builder who acquires the site, determines the design, puts out his own money as the work progresses, and assumes the risk of losing his entire investment if the house does not sell.

Many who have studied the contractual relationships which exist between the contractor and the owner of a house have believed that the housebuilding industry has been afflicted with undermanagement because too many functions and controls remain in the hands of the owner. But these criticisms clearly need not apply to the merchant or operative builder, who does make all necessary decisions and offers a completed product to the final purchaser. The dependency in functions represented by the contractor, as contrasted with the independency in functions of the operative builder, has prompted a number of housing critics to generalise that the industry would necessarily remain inefficient as long as it remained influenced by custom building, and progress could take place only with a shift to merchant building.

If these generalisations are at all accurate, the stage has certainly been set for progress. New statistics indicate that the shift has occurred. In the Bay area and throughout the country, the majority of houses built by firms are constructed by merchant builders. In 1949 merchant builders constructed 71 per cent. of houses built by firms in the nation's metropolitan areas, and 78 per cent. in the Bay area. These are the firms, determining the nature and quantity of their product in advance of sale, which are increasing in number and increasing in size. Although yesterday belonged to the contractor, this study shows that the contractor is not growing; that the merchant builder, taking advantage of to-day's techniques in mass production and mass merchandising, is moving in on to-morrow.

SIZE OF HOUSEBUILDING FIRMS

When housebuilders are examined as to number and classified as to size, two striking facts stand out: first, the large number of active housebuilding firms and their wide diversity of size and type; second, the importance in production of medium- and large-sized firms, particularly in contrast with previous experience.

The number of firms signifies the ease of entry into the industry and is an important determinant of its flexibility and its profit structure. The increased prominence of the larger-scale producers signifies a change in the structure of the industry which has greatly influenced all methods, techniques, and operations in housebuilding.

The Bureau of Labour Statistics estimates that there were 119,600 active housebuilding firms in the United States in 1949. These firms constructed 540,000 dwelling units, or an average of approximately five each.

A firm can be defined as small if it builds between one and 24 houses per year, does less than $200,000 in total volume of business, employs fewer than 10 men, has less than $100,000 in total assets, or is owned and managed by a craftsman who spends most of his time actually working on the job.

A firm can be defined as medium-sized if it builds between 25 and 99 units a year, does between $200,000 and $1,000,000 in business, hires between 10 and 99 employees, has from $100,000 to $600,000 in total assets, and is owned and managed by an executive who has little or no staff and performs almost all overhead work himself, while also spending a good deal of his time on actual job supervision.

A firm can be defined as large if it completes 100 or more houses a year, has a volume of business of more than $1,000,000, hires 100 or more employees, has more than $600,000 in total assets, and maintains a large overhead staff.

Variations in one or two of these attributes do occur, but they are unusual, and often reflect a condition external to the organic situation under study—the firm may conduct other businesses in addition to housebuilding; or, on the day when it reported, its functioning may have been atypical because it was working at less or more than its normal rate.

Of the 119,600 housebuilders in the United States in 1949, more than 115,000 were small, and less than 4 per cent. of all housebuilding firms were in the medium-sized or large classifications. There were only 720 large builders, and 3,030 medium-sized firms. Despite this discrepancy in number, the medium-sized and large groups of firms accounted for 45 per cent. of the units built by firms. Large builders constructed 24 per cent. of the 540,000 units; medium-sized firms built 21 per cent.

These figures represent a dynamic increase in the number of units built by larger firms as well as in the number of large firms in the market since the war. It is clear that an important increase in the concentration of production among the larger firms has occurred, though its exact magnitude cannot be measured because of the lack of comprehensive statistical information for the pre-war period.

We estimate that in 1939 there were only about 90 to 110 large builders (that is, who started more than 100 houses a year) and only about 400 to 600 medium-sized builders (that is, who constructed between 25 and 99 units a year). The large builders started from 15,000 to 18,000 units in 1939, and the medium-sized from 18,000 to 27,000. These represent less than one-tenth of all units (including owner-built) constructed in 1939, compared with the large and medium builders' 1949 percentage of nearly one-third. The large- and medium-sized builders constructed less than one-fifth of the houses started by firms in 1939, compared with nearly half of those started by firms in 1949. The total number of units built by large-and medium-sized firms was at least six times as great in 1949 as in 1939. These figures dramatise both the increase in total production and the increase in the number of larger firms. Both the relative and the absolute changes are striking in the nation as a whole.

A final important force in forming the housebuilding industry's organisation is the house itself. In fact, the prevalent size and type of builder and the type of house produced are interrelated factors influencing each other as well as the structure of the industry. The predominance of large merchant builders throughout metropolitan areas means that a large number of units produced tends to acquire a uniform style, often called the "builder's house," and, in its more mundane aspects, nicknamed the "GI house."

The typical Bay area house built in 1949 was a one-storey detached unit with garage, having five rooms with an area of 1,010 square feet. It had a median price of $10,750. Although the house was built in the rural non-farm or suburban area, in 97 per cent. of the cases it had both a community water supply and a community sewer system. It was almost a frame house. Forty-three times out of a hundred this house had a stucco exterior and was often sheathed only with wire and building paper. When it was not stucco, the exterior was usually redwood siding or shingles. In 83 per cent. of the houses, dry walls were used. Sixty-eight per cent. had only a floor or wall furnace, rather than central heating. A similar percentage had a fireplace.

CLIMATE AND DESIGN

Most of these features are typical of all metropolitan houses. Certain characteristics, chiefly related to climate, make Bay area houses simpler than most others. Because of the mild climate, the percentage of houses without central heating and without a basement or utility room is far higher than the national average. For the same reason, the percentage of Bay area houses containing masonry walls or plaster is much lower than the national average. Nevertheless, the Bay area is closer to the national average in all of these features than are Southern or some other Western cities.

Other characteristics related to the pattern of life and local tradition make the Bay area house more expensive than others. Almost every house has a garage or carport; this is true only of about half the typical houses in other areas. More than two-thirds of the Bay area houses have fireplaces, whereas less than half as many, on the national average, have them. Bay area houses are larger than those in nearly all other areas. Of the 15 metropolitan areas studied for the last half of 1949, the Bay area was found to have the second largest average house. The Bay area house was about 13 per cent. or 120 square feet larger than the median house of the other cities. All this added up—perhaps together with differences in wage rates or efficiency—to a $1,100 difference in the mean price of the Bay area house over the average of the other areas. The Bay area ranked fourth from the top of the 15 metropolitan areas in price of units built, surpassed only by Cleveland, Chicago, and Washington. This same general type of cost relationship for the Bay area has existed throughout the post-war period.

Consideration of the kinds of houses also discloses that many features of the houses produced in the Bay area vary with the size of firm producing them. These facts are significant in that they show that in 1949 builders of different sizes were not primarily competing with each other, but were fulfilling the needs of rather distinct and separate markets.

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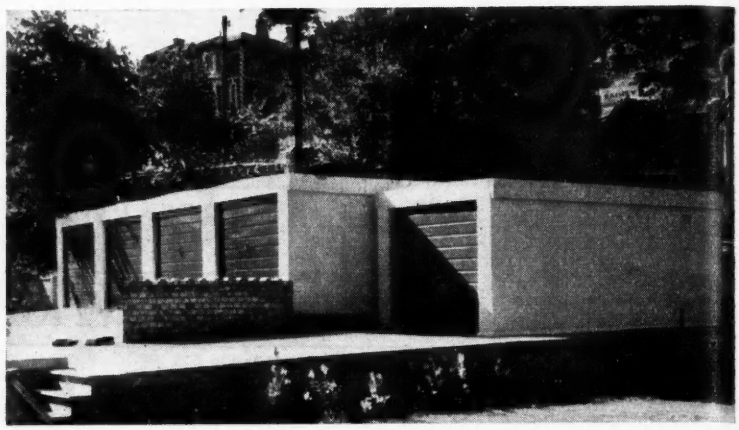

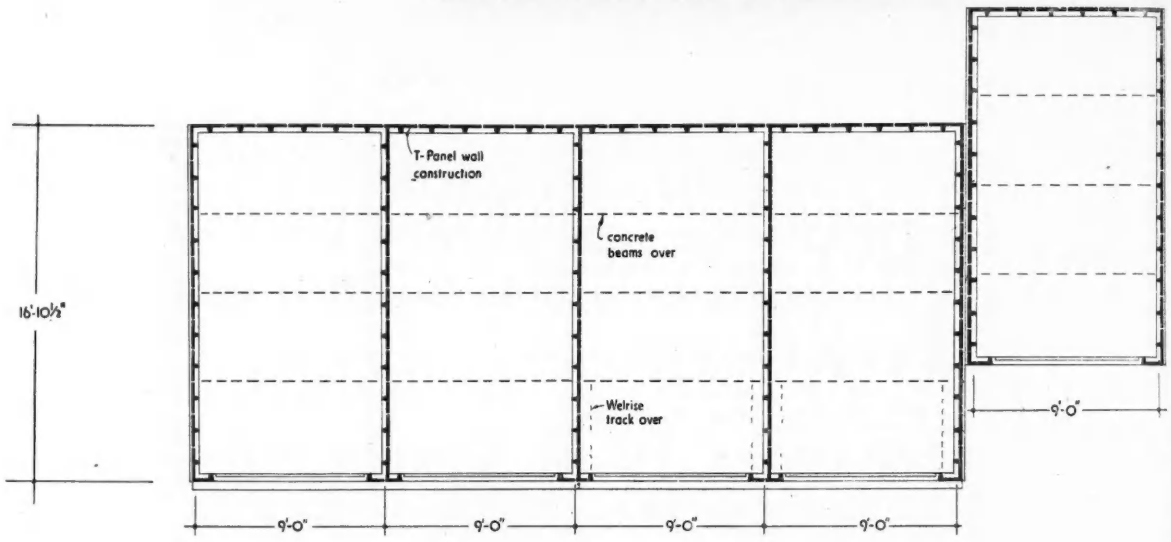

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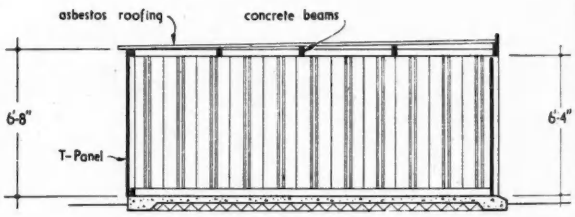

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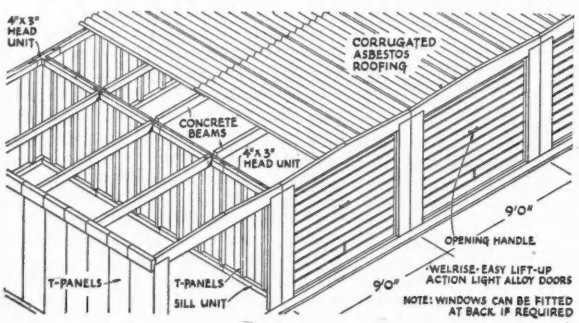

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WOOLAWAY CONSTRUCTIONS LIMITED
Head & Registered Office :
11, CANON STREET, TAUNTON, SOMERSET. TAUNTON 4496.
Works at Bridport, Dorset, and Pontyclun, Glam.

W7

certainly finer quality. Proportionately more houses constructed by small builders have basements or utility rooms, central heat, extra bathrooms, and costlier surfacing for both the exterior and interior walls than do the houses built by the medium-sized and large firms. All these features indicate greater value in the house of the small-sized group of firms.

These small firms produce houses on contract for a small, select market which can afford, and usually demands, many special services. It is a custom market which parallels the high-priced custom market in many other commodities, in contrast with the cheaper, mass production market.

Bay area builders of more than 100 houses sold about 47 per cent. of their total production for less than $9,000. More than two-thirds of their houses were priced under the general average. The median-priced house sold by the smallest builders—of less than 10 houses—cost $13,000, with nearly 40 per cent. of this group's production reaching more than $15,000. Remembering that the median house among all groups sold for $10,750, it is possible to conclude that the concentration of the large producers is in the mass market, whereas the smaller the builder, the more expensive a house he is likely to produce, and the more select his market.

The large-scale builder, interested principally in large expanses of relatively cheap land for tract development, must go outside the cities to obtain it. The percentage of small firms building primarily in the central cities is three times as high as the percentage of large firms. When the small builder utilises land in built-up areas, he is not competing with the large firm at all, but actually is dealing in an entirely different product in a separate market.

(To be continued)

HOUSING PROGRESS REPORT

Figures for July

THE Housing Summary presented to Parliament as a White Paper jointly by the Minister of Housing and Local Government and the Secretary of State for Scotland, shows that the number of permanent houses completed in Great Britain during July was 30,159 compared with 27,206 in July, 1953.

In the first seven months of 1954, 197,854 permanent houses were completed compared with 172,510 in the same period of 1953.

BOOKS RECEIVED

THE HOUSING REPAIRS AND RENTS ACT, 1954. By G. Avgherinos and A. E. Telling. (London: The Estates Gazette, Ltd.) Price 15s. 6d.

TRADESMAN'S READY CALCULATOR OF MEASUREMENTS. By J. Stevenson. (London: Routledge and Kegan Paul, Ltd.) Price 3s. 6d.

BUILDING CONSTRUCTION FOR CRAFTSMEN AND BUILDERS. By C. Lloyd. (London: Macmillan and Co., Ltd.) Price 12s. 6d.

SPECIFICATION 1954. Edited by F. R. S. Yorke, FRIBA. (London: Architectural Press.) Price 30s.

THE BOOK OF WALLPAPER. By E. A. Entwisle. (London: Arthur Barker.) Price 30s.

RHEUMATISM AND THE BUILDING WORKER

From A Correspondent

"IT'S a pity about old Bill—he's getting so slow. If his body were as active as his brain, he'd be worth his weight in gold. . . ."

This sort of comment is being made to-day about more than 75,000 building workers in Britain, for that is the number of those in the industry who suffer from rheumatic ills, ranging from weather-forecasting "twinges" to genuine physical disability.

The building worker is particularly unfortunate in this respect compared with other skilled craftsmen. Not only is he generally out of doors, exposed to the elements, but he is dependent for his working capabilities on his arms *and* legs.

In terms of loss of production, sick pay and cost of medical services, rheumatism costs British industry £250 million. The building industry's share in this huge burden is probably at least £7,500,000.

When "Bill" has rheumatism he suffers physically, his pay packet suffers, and one or more of his family has to care for him. His employer suffers from loss of production and Bill is a burden on the taxpayer.

Can anything be done for him? In recent years medical research has so far advanced that, according to Lord Horder, three out of five cases of rheumatism could be checked, cured or ameliorated if diagnosed and treated in time.

Few hospitals have rheumatic units. Those which have lack the necessary bed space. Consequently, Bill will often have to wait nine to 12 months before he can be admitted to hospital. He has thus to suffer extra months of pain, extra months with "short time" or with no pay at all, and, because of the delay, the successful outcome of his treatment is prejudiced. Similarly, his employer, his family and the taxpayer will all suffer from these extra months of sporadic or continuous absenteeism.

The British Rheumatic Association aim to help Bill and those who suffer indirectly through his absenteeism. They aim to make it easier for sufferers to get prompt diagnosis and treatment, using mobile clinics where necessary in rural districts.

Through an all-party group in both Houses of Parliament they urge the installation of special rheumatic units in Regional Hospitals, and want to see that beds for serious cases shall be available. They want to educate sufferers about the vital importance of early treatment, and make it generally realised that the first symptoms must not be neglected.

Their idea is to co-ordinate all the official and voluntary services, and to educate employers and employed, so that treatment can be given on the job.

If the sufferer realises that his case and pain are not incurable, it may be possible to bring him back to 100 per cent. physical efficiency.

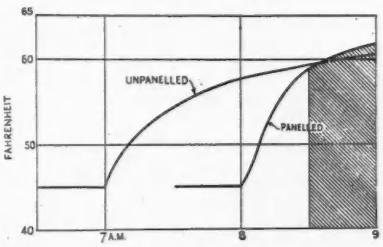
Much of this educational programme is being carried out and much remains to be done. As a practical measure the Association have already opened a hostel at Northwood, Middlesex, where patients can be immediately accepted and receive treatment and diagnosis at the near-by Mount Vernon Hospital, thus cutting out months of delay and ensuring that Bill's case will be diagnosed and treated in time. This hostel (and the other plans of the Association) has the approval and good will of the Ministry of Health. From the experience gained, other hostels will be opened where required throughout the country. Treatment will be free, but maintenance charges will vary from £4 15s. to seven guineas a week, payable by the patient himself, his employer, his firm's welfare fund or by a sick benefit association.

The Association is equally active in welfare services for the home-bound sufferer—a very important point if Bill's wife has rheumatism. Details of these, and other services, can be obtained from the British Rheumatic Association, 11, Beaumont-street, W1.

PLYWOOD PANELLING AND CENTRAL HEATING

Precautions Against Cracks and Splits

IT has long been known that wood panelling, in addition to its beauty, provides a fine insulating surface and helps to maintain a steady temperature in a room. What is perhaps less widely realised, states the Timber Development Association, is that the temperature of a panelled room can be raised from 45 deg. F. to 60 deg. F. in half the time required to heat a room without panelling. In other words, if, on a cold morning, a living-room temperature of 60 deg. is required by nine o'clock, the fire must be lit at seven o'clock in a room not panelled, whereas it need not be lit until eight o'clock in a panelled room.



A graph showing the time required to raise the temperature of a room, panelled and unpanelled, from 45° F. to 60° F. It is reproduced by courtesy of the Building Research Station.

Where there is central heating other considerations, of course, apply and problems arise for the panelling itself, particularly near radiators. From medieval times until comparatively recently panelling usually consisted of small framed panels of solid wood, often beautifully carved and ornamented. To-day large flush sheets of plywood or blockboard are used covered with decorative veneers of wood cut to show the natural beauty of the grain and figure.

Although plywood is one of the most stable of materials, both it and the surface veneer may be adversely affected by sudden increases in temperature leading to a very dry atmosphere. The TDA has, therefore, produced a leaflet describing the factors involved and the precautions to be taken in new buildings where wide veneered panels

have been fitted. Copies of the leaflet can be obtained free, from the TDA, 21, College Hill, London, EC4.

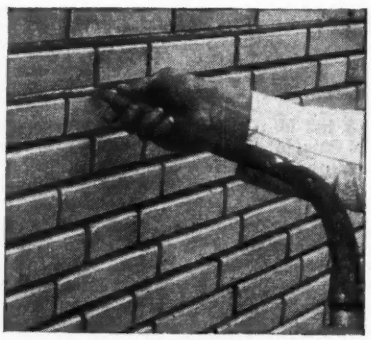
TDA AWARD

Mr. C. Lorenzen, of J. Gliksten and Son, Ltd., has been awarded the TDA Higher Certificate.

A POINTING MACHINE

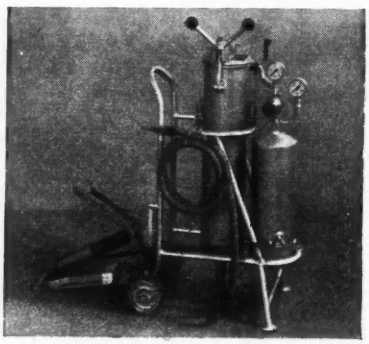
West German Invention

THE pointing machine illustrated on this page has been recently developed by the Baumaschinenwerk Luebeck GmbH, Luebeck. Impartial observers, we learn, consider that the machine's performance actually exceeds that claimed by the manufacturers. The machine can be filled and made ready for use in three to four minutes. Working to capacity, this will flush up the joints of 6 to 9 yds. super according to the size of the brick used and the bond. With four



to six bricklayers following up and trowelling off the finish of the joint, work will proceed at the rate of 3 to 4 yds. super per hour.

The main parts of the machine consist of mortar container, air compressor with minor discharge valve, foot pump and 2-metre rubber tube with rubber mouthpiece. The container capacity is 2 gallons,



the complete weight being 92.5 lb. The foot pump compression for each filling is two minutes.

This pointing machine, made by the Baumaschinenwerk Luebeck GmbH, is agented in Great Britain by Messrs. Tingleys, 60, Buckingham-road, Shoreham-by-Sea, Sussex.

SINGLE-STACK DRAINAGE

An exhibition featuring single-stack drainage for multi-storey flats will be staged at the Royal Sanitary Institute during the week beginning November 8.

BUILDING EDUCATION

Further Education in Middlesex

THE Middlesex County Council Education Committee, Education Offices, 10, Great George-street, London, SW1, have issued a prospectus entitled "Guide to Further Education in Middlesex," for the session 1954-1955. The guide contains lists of full-time courses and part-time day and evening courses, in architecture, civil engineering, building and surveying, available at technical colleges, polytechnics, schools of art and evening institutes.

The "Guide to Further Education in Middlesex" is intended as a general handbook to help intending students to locate the course in which they are interested. A comprehensive list of institutions providing courses in further education is given in order that applications for more detailed information may be made to the particular institution or officer concerned. A general list of fees and county awards is also provided.

It should be noted that enrolment at most Middlesex technical colleges, polytechnics, schools of art and evening institutes begins on Monday, September 13.

Building Crafts Training School

A COMPREHENSIVE prospectus has also been issued by the Worshipful Company of Carpenters' Building Crafts Training School, 153, Great Titchfield-street, W1, containing details of day and evening courses available for the session 1954-1955. The courses are intended for those already engaged in a particular craft and who wish to obtain further knowledge of its theory and practice. They are also intended to prepare students for the examinations of the City and Guilds of London Institute.

Copies of the prospectus and further particulars may be obtained from the Director of the School at the above address, or the Clerk to the Worshipful Company of Carpenters, 28 Austin Friars, London, EC2.

TRAINING COURSES IN CONCRETE PRACTICE

Introduction of New Scheme

THIS autumn will see the inauguration of a new phase in the development of building practice—the award of an officially recognized certificate of proficiency for concrete supervisors and foremen, which is being offered by the City and Guilds of London Institute. At the suggestion of the Reinforced Concrete Association, the Institute set up a committee representing all sides of the building industry, to prepare a syllabus of courses preparatory to the certificate examination, and these courses are now being organised in technical schools and colleges all over the country. They are being so arranged that participants can start a course at one college and complete it at another if their work should demand a move during the session.

A knowledge of good concreting at "man on the job" level has previously been a matter of a gradual gaining of experience rather than of a definite training in the whys and wherefores of good practice. Such a method takes time, and a great handicap to the best development of concrete has been the slow recruitment of efficient supervisors. These new courses are designed to train a class of men who will not only know how good concrete should be made, but the why and wherefore, and will be able to pass on their knowledge to the men under their supervision.

It is an innovation that must benefit both employer and employed; the employer because his product will gain in quality, his task of supervision will be made easier, his men will have a greater interest in their work; the employee for the same reason—that the work will inevitably gain his interest, and because of the prospects of promotion that the certificate will open up.

So far 36 technical colleges have announced their intention of offering the courses, which will consist of two-hourly sessions held weekly for 24 weeks, during the September-May period.

The City and Guilds of London Institute will hold its examinations in May, 1955, after which successful candidates will be awarded the City and Guilds' Certificate in Concrete Practice (Grade I). Prizes are also being offered by the Reinforced Concrete Association and the Prestressed Concrete Development Group.

The syllabus includes both lectures and practical work, and covers the following subjects: concrete materials (properties, storage, tests, etc.), proportioning and batching, the use and care of machinery; placing, compaction, curing, tests on concrete, formwork, reinforcement, prestressed concrete and the manufacture of precast products.

Application for places should be made direct to the colleges. A list of those offering the courses can be obtained from the Cement and Concrete Association.

MONOPOLIES COMMISSION

Investigation of Sand and Gravel Supply in Central Scotland

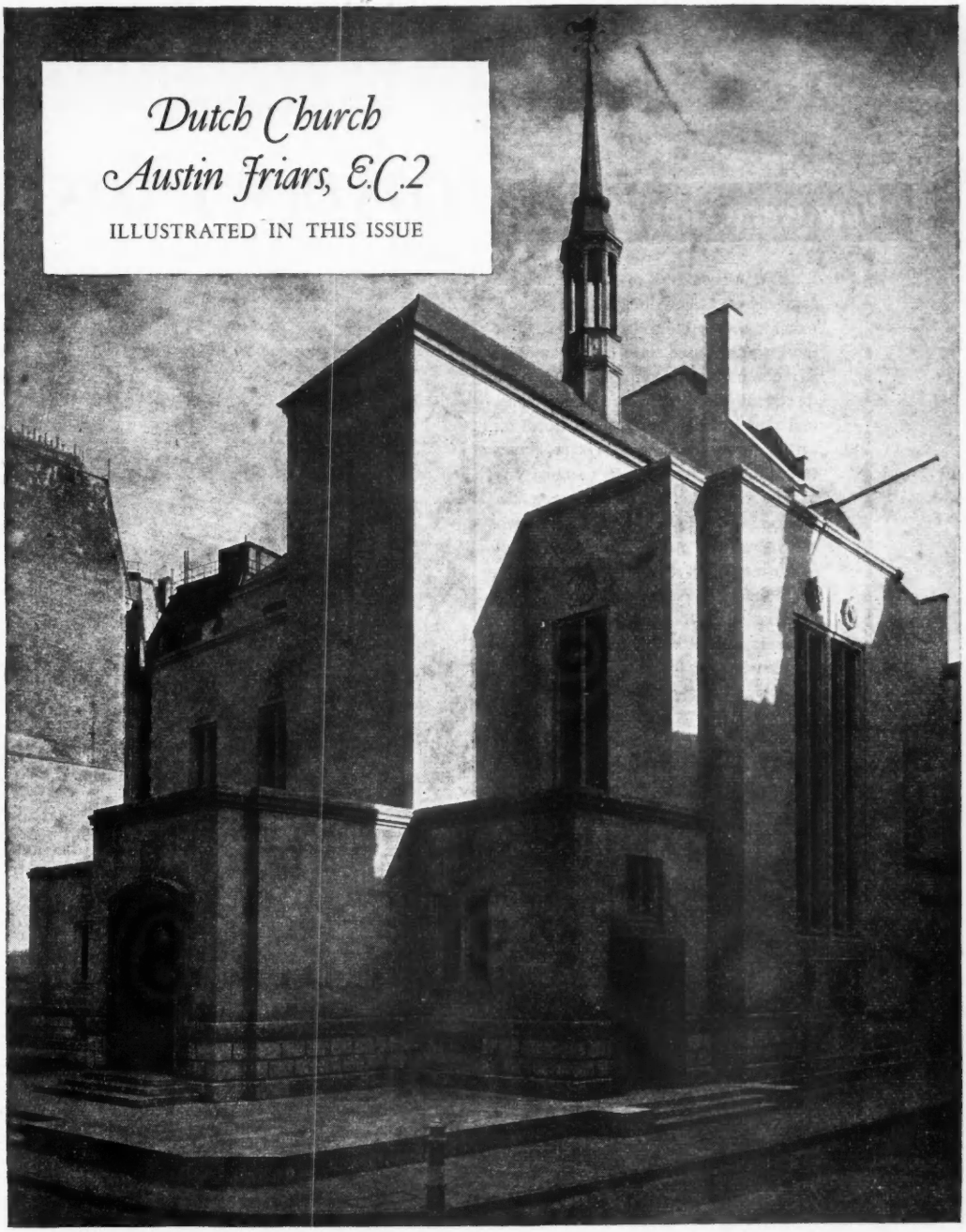
IN ACCORDANCE with the provision of the Monopolies and Restrictive Practices Commission Act, 1953, the chairman of the Commission has appointed the following group to continue the investigation and to report on the reference concerning the supply of sand and gravel in Central Scotland: Mr. D. A. S. Cairns, QC (chairman), Prof. G. C. Allen, Mr. J. Archdale, Mr. W. G. Cullen, Mr. Brian Davidson, Mr. C. N. Gallie, Mr. C. H. P. Gifford, OBE, Prof. A. L. Goodhart, KBE, QC, and Mr. Gordon Stott, QC.

The original Monopolies and Restrictive Practices (Inquiry and Control) Act of 1948 was amended last year. The amendment provides, among other things, that the Commission's work may be divided between groups of not less than five members selected by the chairman. The constitution of several such groups for other of the Commission's inquiries has already been announced from time to time.

The investigation of the supply of sand and gravel in Central Scotland has been in progress for some time and the constitution of the group will not involve any duplication of work that has already been done, as the members who form the group have already been concerned in the investigation.

PRINCE HENRY'S ROOM

Because of the discovery of dry rot in the floor, Prince Henry's Room, 17, Fleet-street, EC4, has been closed for repairs until September 20. The work is being done urgently because of the possible danger to visitors, to prevent the spread of dry rot, and so that Prince Henry's Room may be reopened as soon as possible, and in good time for the resumption of evening classes which are held there by the LCC's City Literary Institute.



Architects: A. Bailey, O.B.E., F.R.I.B.A., Messrs. Ansell & Bailey. Contractors: Trollope & Colls, Ltd.

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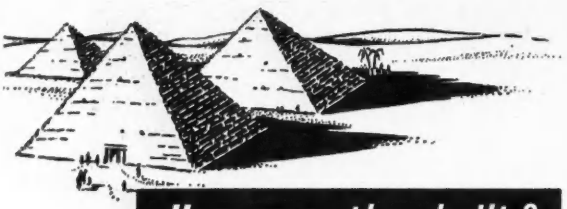

How were they built?

It's always been a bit of a puzzle and we can only guess how long it took or how much it cost to build the Pyramids. But the Egyptians used slave labour anyway, so it doesn't really count. Today you have to pay all along the line: labour, time, materials and everything, so any ideas on saving are very welcome. When it comes to scaffolding there's a very simple way to cut costs and that's by using the fabricated NO-BOLT Double Coupler. It's strong and makes the safest, most secure method of joining scaffolding tubes yet thought of. And you don't need to be a Nubian slave to fix it, nor do you need spanners, nuts or bolts; a mere tap with a hammer is all that's required. Releasing it is just as easy. It's fastened by nothing more complicated than a wedge—an idea that's as old as the Nile, in a setting as modern as tomorrow.

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NO-BOLT
DOUBLE COUPLER
TYPE
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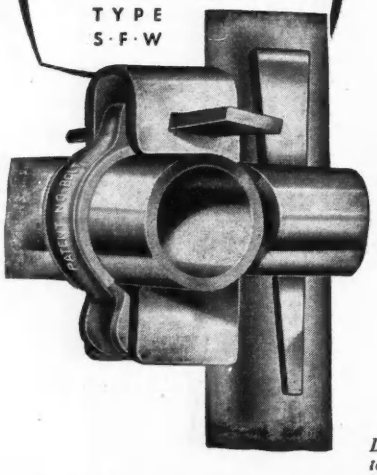

Supplied also with
CAPTIVE WEDGES
which cannot be lost. Quick delivery ex-stock and an efficient service guaranteed.

Demonstrations arranged to prove that with the NO-BOLT system any form of scaffolding can be erected at less cost. Five times the work for the same labour cost—an 80% saving—is typical

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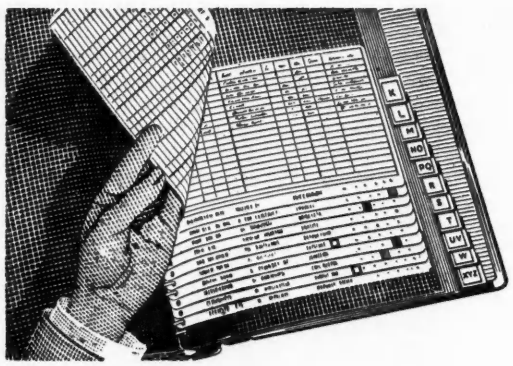
THE NEW IDEA IN CONTRACT CONTROL



Mere book recording of contracts is no longer sufficient for the progressive Builder.

A new method has been specially designed in conjunction with the Builder to give him those essentials he MUST HAVE.

Just glance at the new record shown above.

The overlapping visible edge shows at sight every undertaking (whether few or many) together with the progress of each contract, drawings and plans submitted, licences obtained, approvals from Public Health and Town and Country Planning Authorities.

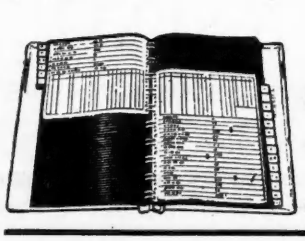
Coloured signals pin-point urgent action, hold-ups, outstanding work.

Details of contractors involved, their estimates or tenders, costings, etc., are all controlled. Water, gas and other services available, together with drawing-office costs, estimates, fees, etc., are all provided for.

The records are housed in compact binders (or smaller portable panels if preferred). Records can be inserted or removed in correct sequence in a matter of seconds. And clerical labour is reduced to a fraction of the work in maintaining books and out-of-date systems.

Where preferred, records can be slotted in files which house the documents and correspondence, each file having a flat top across its full width for instant identification and job progressing, thus providing visibility PLUS filing.

This system is the outcome of considerable research into the difficulties and requirements of Builders and is worth considering in the light of your particular problem. Just jot "Builder's System" on your letterheading for full details by return.



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THE SHANNON LTD.
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The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchants warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	3	1
Pit Sand	,,	1	1	8
Washed Sand	,,	1	3	8
¾ in. Shingle	,,	1	0	0
¾ in. Broken Brick	,,		19	3
Pan Breeze	,,		9	6
Fine or Coarse Foamed Slag Aggregate 2 yds. of fine and 2.6 yds. of coarse per ton	per ton	3	0	9

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area. 6-ton loads and upwards, site	per ton	4	16	6
1 to 6 tons, site	,,	5	5	6
Ferrocrete Rapid Hardening Cement in 6-ton loads and upwards to site	,,	5	4	6
1 to 6 ton do. site	,,	5	13	6
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colorcrete in 6-ton lots	,,	6	18	0
Other colours according to colour.				
In 4-ton lots from 211s. 9d. to 435s. 9d. per ton.				
White Portland Cement	,,	12	17	0
Under 1 ton	per cwt.		15	4
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	6	9	0
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £9 4s. 3d. to £10 17s. 9d. (1-ton loads and upwards).				
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up	,,	14	0	9
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	,,	6	2	3

BRICKS

		£	s.	d.
Full Loads.				
First Hard Stocks	per 1,000	11	7	0
Second Hard Stocks	,,	10	11	0
Mild Stocks	,,	8	16	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½ in. Nominal Fletton Bricks to sites in W.C. District Commons	,,	5	13	0
Cellular do.	,,	5	13	0
Keyed do.	,,	5	15	0
Rustics	,,	6	18	0
Cellular Rustics	,,	6	18	0
Single Bullnose do.	,,	6	13	0
Sandfaced	,,	7	13	0
Best Blue Pressed Staffs (London Stations)	,,	24	19	6
Do. Bullnose (London Stations)	,,	25	13	6
Blue Wire Cuts (London Stations)	,,	22	11	0
Midhurst Lime Bricks (London Sites)	,,	10	3	0
Uxbridge Whites (London Sites)	,,	9	1	6
2½ in. Best Stourbridge Fire Bricks (London Stations)	,,	24	6	0
3 in. do. (London Stations)	,,	29	3	3
2½ in. Machine-made Sandfaced Red Facings (London Sites)	,,	13	19	6
2½ in. Machine-made Multi Red Facings (London Sites)	,,	14	4	6
2½ in. Hand-made Sandfaced Red Facings (London Sites)	,,	14	7	0
2½ in. Hand-made Sandfaced Multi-Colour Facings (London Sites)	,,	14	7	0
2½ in. Surrey Clamp Burnt Multi Stock Facings (London Sites)	,,	13	6	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London Sites)	per 1,000	14	4	6
Glazed Bricks (London sites), White, Ivory, Brown—				
Stretchers	,,	64	0	0
Headers	,,	63	0	0
Quoins, Bullnose and 4½ in. Flats	,,	80	0	0
Double Stretchers	,,	85	0	0
Double Headers	,,	77	10	0
One side and two ends	,,	87	0	0
Two sides and one end	,,	89	10	0
Splays and Squints	,,	83	0	0
Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 7½% for Best quality and plus 7½% less 10% for Second quality.				

PARTITION SLABS, etc.

Delivered Central London Area.

HOLLOW CLAY PARTITION BLOCKS (Keyed)

	Minimum lorry loads.		£	s.	d.
2 in.	140 yds.	per yd. sup.		4	3
2½ in.	140 yds.	,,		4	6
3 in.	120 yds.	,,		5	0
4 in. (6 cavity)	95 yds.	,,		6	7
Half blocks at no extra charge.					

CLINKER CONCRETE.

			£	s.	d.
2 in.	100 yds.	,,		3	7
2½ in.	85 yds.	,,		4	2
3 in.	75 yds.	,,		5	0
4 in.	55 yds.	,,		6	2

CRANHAM

		£	s.	d.
2 in.	,,		6	8
2½ in.	,,		7	4
3 in.	,,		8	7
4 in.	,,		10	7
4½ in. Load bearing quality	,,		11	8

FLOOR BLOCKS

		£	s.	d.
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads	per 1,000	31	10	0
4 in. do.	,,	34	13	0
5 in. do.	,,	39	7	0
6 in. do.	,,	46	16	0
7 in. do.	,,	54	1	0
8 in. do.	,,	61	15	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Standard List prices delivered London Area.

	Over 2 tons	Over 100 Pieces under 2 tons	Under 100 Pieces under 2 tons
Best Quality	+67½%	+97½%	+107½%
B.S.S. Best do.	+10% +67½%	+10% +97½%	+10% +107½%
Tested Quality	+37½% +67½%	+37½% +97½%	+37½% +107½%
B.S.S. Tested do.	+47½% +67½%	+47½% +97½%	+47½% +107½%

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	10	8	6
4 in. do.	,,	13	14	6

STONE

		£	s.	d.
Bath Stone—				
Monks Park	per ft. cube		7	10
St. Aldhelm Box Ground	,,		8	10
Delivered in railway trucks at South Lambeth B.R. Western Region				
Doulting Stone Random Blocks. Delivered London area	,,		8	4
Beer Stone. Delivered London area	,,		8	0
Portland Stone—				
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	,,		8	1½
Yorkshire Stone—Blue Robin Hood Quality.				
Delivered to site London in 6-ton lots.				
9 in. × 3 in. Rubbed, weathered, throated and stooled cills	per ft. cube	3	4	3
12 in. × 6 in. do. do.	,,	2	6	0
12 in. × 3 in. Plain coping, twice throated	,,	1	15	4
12 in. × 3 in. Weathered and twice throated coping	,,	2	7	4
14 in. × 6 in. do. do.	,,	2	2	8
4½ in. × 9 in. Plinth, rubbed on top and face	,,	1	18	1
3 in. sawn two sides Slabs, random sizes	per ft. sup.		6	9

STONE—*continued*

		£	s.	d.
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ...	per ft. cube	1	3	5
Do. do. fair one edge for fair faced brickwork		1	7	10
Hard York—				
12 in. ×2 in. Square Steps, rubbed on top and edge	per ft. run		8	2
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2	3	8
12 in. ×6 in. Plain Steps, rubbed top and front ...	,,	1	18	3
2 in. Rubbed and Jointed Paving, given sizes ...	per ft. sup.		7	10
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup	2	13	10

TILES and PANTILES

Delivered London area by road in 6 tons or over per 1,000

	£	s.	d.
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	8	0
Hand-made Pantiles Berkshire district	47	10	0
Hand-made Double Roman Bridgwater district	58	13	6
Hand-made 10½ × 6½ tiles Berkshire district	13	1	9
Machine-made 10½ × 6½ Staffordshire district	13	8	9
Hand-made Hip and Valley tiles per doz.	1	8	9
Machine-made Hip and Valley tiles do.	1	6	6
Concrete tiles 10½ × 6½	7	14	6
do. Interlocking (49S)	18	9	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

24 × 12	113	0	4
22 × 12	93	16	0
22 × 11	84	15	0
20 × 12	79	19	6
20 × 10	74	12	0
18 × 10	53	18	9
18 × 9	47	5	6
16 × 10	44	7	0
16 × 8	34	10	6

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

			£	s.	d.
Softwood—					
Joinery quality	Ex. Wharf	per standard	£105 to £125		
Carcassing quality	do.	,,	£95 to £100		
1 in. Tongued and Grooved Flooring	do.	,,	£106	0	0
Hardwood—					
Mahogany—African S.E. ...	do.	per ft. cube	1	5	0
do. Honduras do. ...	do.	,,	3	5	0
Oak European do. ...	do.	,,	1	18	6
do. Japanese do. ...	do.	,,	2	5	0
do. English Logs sawn	do.	,,	1	5	0
Teak 8 in. average S.E.	do.	,,	3	0	0
Walnut African Logs sawn	do.	,,	1	1	6

DOORS (in Lots I-II)

Delivered London area.

		£	s.	d.
1⅛ in. 4 Horizontal Panel Pattern 4 in. deal				
2 ft. 0 in. × 6 ft. 6 in.	each	1	12	0
2 ft. 3 in. × 6 ft. 6 in.	,,	1	13	0
2 ft. 6 in. × 6 ft. 6 in.	,,	1	14	0
2 ft. 9 in. × 6 ft. 6 in.	,,	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	,,	2	9	0
2 ft. 9 in. × 6 ft. 6 in.	,,	2	11	6
2 in. Panel, top panel open. Pattern 2 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	,,	2	1	9
2 ft. 9 in. × 6 ft. 6 in.	,,	2	3	6

SUNDRIES

Delivered London area

1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.	5	8
1½ in. do. (67 yds. to 1 ton)	,,	7	4
2 in. do. (52 yds. to 1 ton)	,,	8	11½
2½ in. do. (45 yds. to 1 ton)	,,	10	3
3 in. do. (39 yds. to 1 ton)	,,	11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.			
⅛ in. imported insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2	2	6
¼ in. Hardboard do.	,,	2	3	6
⅛ in. do. do.	,,	3	5	0
⅛ in. Asbestos Flat Building Sheets	per yd. sup		3	2
Roofing Felt, 1-ply	,,		1	6
do. 2-ply	,,		1	9
Best Scotch Glue, in slabs	per ½ cwt.	5	0	0
do. pearl	,,	5	5	0
Croid Glue	28 lb.	2	5	0
Cut Nails 3 in. (1-ton lots)	per ton	56	5	0
do. 4 in. and up (1-ton lots)	,,	52	15	0
Wire Nails, 3 in. (4-cwt. lots)	per cwt.	2	16	3
do. 4 in. and up (4-cwt. lots)	,,	2	12	9

METALS

STEEL JOISTS, ETC.

		£	s.	d.
Basis Joists—				
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in. plain cut to lengths delivered London area	per ton	38	7	6
Extra for sizes				
3 in. × 1½ in.	,,	3	10	0
3 in. × 3 in., 4 in. × 3 in., 5 in. × 2½ in. ...	,,	1	5	0
4 in. × 1¾ in.	,,	3	0	0
4½ in. × 1½ in., 24 in. × 7½ in.	,,	2	0	0
5 in. × 3 in., 22 in. × 7 in.	,,	1	0	0

		£	s.	d.
6 in. × 3 in.	per ton	1	10	0
9 in. × 7 in.	,,		5	0
10 in. × 4½ in. 12 in. × 5 in.	,,		15	0
5 in. × 4½ in. 6 in. × 4½ in. 7 in. × 3½ in. 7 in. × 4 in. 8 in. × 4 in. 9 in. × 4 in. 10 in. × 5 in. 10 in. × 8 in. 12 in. × 8 in. 13 in. × 5 in. 14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in. 15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. 16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in. 18 in. × 8 in. 20 in. × 6½ in.	,,		10	0
20 in. × 7½ in.				
Steel angles average price	,,	39	12	6
Steel tees average price	,,	40	12	6
Fabricated work delivered London—				
R.S. Joists cut and fitted	,,	53	7	6
Compound girders	,,	58	12	6
Stanchions	,,	63	17	6
Compound stanchions	,,	67	7	6
In Roof Work—Trusses and Purlins	,,	79	7	6
Average prices not for awkward work.				
Mild Steel Ferro-Concrete bars to BSS785 ex London				
Stock ⅜ in. diam., and upwards	,,	39	14	6
¼ in. diam. ... ...per ton extra		3	12	0
5/16 in. do.	,,	2	17	0
⅜ in. do.	,,	2	2	0
½ in. do.	,,	1	7	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts:

Galvanised Tube—	W.I. Fittings	Malleable Fittings
Class A — 1¾%		
Class B + 7¾%	Light + 23¼%	Malleable List — 35% + 40%
Class C + 23¾%	Heavy + 30¾%	
Black—		
Class A — 22%		
Class B — 11¾%	Light + 11%	Malleable List — 35%
Class C + ¾%	Heavy + 18¼%	

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/2	2/9	/10
3½ in.	3/5½	3/–	/10
4 in.	4/5½	3/5	1/2
4½ in.	4/10½	3/9	1/6
5 in.	5/5½	4/2	1/8

C.I.O.G. GUTTERS

3 in.	4/1	3/8	/11
3½ in.	4/6½	3/8	1/2
4 in.	5/–	3/9	1/6
4½ in.	5/5½	4/5	1/8
5 in.	5/11	5/1	1/11

C.I. RAIN-WATER PIPES

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	6/5½	3/5	4/10
2½ in.	6/9	3/9	6/8
3 in.	7/7	4/9	7/3
3½ in.	8/7	5/8	8/7
4 in.	9/11½	6/11	10/2

L.C.C. COATED SOIL PIPES

2 in.	7/7½	5/10	7/2
2½ in.	8/1	6/6	8/11
3 in.	9/0½	7/2	10/8
3½ in.	10/1½	8/11	12/5
4 in.	11/6½	10/–	14/7

Above prices for gutters, rain-water and soil pipes for under 3 cwt. lot only. Lots over 3 cwt. see List No. 3200 dated May 1, 1952, plus 10% and tonnage allowance. 4-ton lots 5 per cent, 2-ton lots 2½ per cent.

L.C.C. COATED DRAIN PIPES

In 9-fts.	cwt.	qr.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	24/5	16/6	28/9
6 in.	2	0	1	36/3	34/3	58/9

ASBESTOS RAIN-WATER PIPES AND FITTINGS

Orders under £30 less 12½ per cent. discount.
Orders over £30 less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths	...per yd.	3/9	4/–	4/10	6/5
Shoes	... each	2/5	2/8	3/2	4/3
Single Branches	... ,,	3/9	4/6	5/4	7/6
Bends square or obtuse	,,	2/8	2/11	3/9	5/4
Swan Necks 4½ in. proj.	,,	2/11	3/9	4/3	5/11
do. 6 in. do.	,,	3/2	3/9	4/10	6/5

ASBESTOS O.G. GUTTERS AND FITTINGS

		4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths	...per yd.	3/7	3/11	4/8	5/7½
Drop ends	each	2/10	3/4	3/10	4/7
Stop Ends	,,	/10	/11	1/–	1/2
Angles	,,	2/11	3/5	4/1	4/10
Nozzles	,,	2/10	3/4	3/10	4/7
Union Clips	,,	1/5	1/8	2/1	2/5

ASBESTOS HALF-ROUND GUTTERS AND FITTINGS

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths	...per yd.	2/6	2/11½	3/0½	3/7	5/–
Drop ends	each	2/1	2/5	2/8	2/11	4/3
Stop ends	,,	/9	/10	/11	1/–	1/2
Angles	,,	2/5	2/8	2/11	3/2	4/3
Nozzles	,,	2/1	2/5	2/8	2/11	4/3
Union Clips	,,	1/–	1/1	1/2	1/4	2/–

You put down your drainpipes...

If you never want to have to dig them up again put down

Salt Glazed VITRIFIED CLAY ***pipes and conduits***

They must be strong and smooth. They must be tough to resist the effects of abrasives. They must be proof against acid-forming gases inside the pipes and acidic substances in the soil. (Remember most soil in Great Britain *is* acidic.) They must be easy to handle and easy to lay. And they must stay down — maybe for centuries.

Put down salt-glazed vitrified clay pipes. Then, whatever happens, you know they'll never let you down.

And anything might happen! You don't know what virulent effluent future industrial development may introduce into those drains. But whatever's coming to them, salt-glazed vitrified clay pipes can take it!

Vitrified acid-resisting salt-glazed clay pipes are absolutely hard and glassy smooth. They never corrode into that first slight roughness that can cause a blockage. They do their job for centuries.

NATIONAL SALT GLAZED PIPE MANUFACTURERS' ASSOCIATION

Profit Multiplied when Plasticised

THIS (COSTING 5d.) → **SAVES** → **THIS** (COSTING 5/-)

using

FEBMIX ADMIX MASONRY MORTAR

(PATENT APPLIED FOR)

Do you use a 3 to 1 mortar for external renderings or for brickwork?

IF SO, YOU ARE WASTING MONEY—UNDER NORMAL CIRCUMSTANCES IF YOU MAKE IT WEAKER IT BECOMES TOO HARSH TO WORK, BUT WITH FEBMIX ADMIX INCORPORATED YOU CAN SAFELY CHANGE THE MIX TO 6 TO 1. BY MAKING THIS CHANGE, EACH HALF PINT OF FEBMIX ADMIX WILL SAVE ONE CWT. OF CEMENT.

You spend 5d. and get back 5/-—and you get a "fatter" mortar — a rainproof mortar — and a crack-free mortar.

● *It costs you money <u>not</u> to use it* ●

Write for Brochure

FEB (GREAT BRITAIN) **LTD.**

ALBANY ROAD, CHORLTON-CUM-HARDY, MANCHESTER, 21 Phone: Chorlton 1063
TUDOR PARADE, LONDON ROAD, HOUNSLOW, MIDDX. Phone: HOU 0082

METALS—*continued*

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	40 2 6
Mild Steel Bars	37 17 6
Mild Steel Hoops	39 5 0
	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft sheets C.R. and C.A.—	
20 gauge	46 14 6
24 gauge	47 19 6
26 gauge	49 9 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	53 12 0
24 gauge	55 12 0
26 gauge	58 7 0
Galvanised Flat sheets C.R. and C.A.—	
20 gauge	54 12 0
24 gauge	56 12 0
26 gauge	59 7 0

PLUMBERS' BRASS WORK, COPPER, ZINC, ETC.
Delivered in London area.

All per doz.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
	M.O.H.					
Screwdown bib cocks Crutch head for iron	73/6	109/3				
Toilet bib cocks for iron ...	94/6	135/6				
Screwdown stop cocks for iron	63/–	91/3	179/6	308/9	441/–	778/–
do. with two unions for lead	85/–	126/–	223/9	400/–	529/–	1178/–
Double nut boiler screws ...	15/9	22/–	40/–	41/–	56/9	80/–
Heavy Croydon ball valves ...	65/–	148/–	226/9	413/9	586/–	
Plumbers' union brass lead to iron	16/6	20/–	33/–	57/9	71/–	138/9
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	28/6	34/9	50/6	78/9	100/9	131/3
Brass sleeves		26/3	26/3	47/3	63/–,	64/–
	1¼ × 6 lb.		1½ × 6 lb.	2 × 7 lb.		3 × 7 lb.
Lead P. trap with brass cleaning screws	60/9		75/9	121/–		207/–
Lead S. trap do.	73/3		91/–	149/–		267/9

		s. d.
Solder		
Plumbers'	per lb.	3 3
Tinmen's	,,	4 0
Blow pipe	,,	4 1

Copper tubes BSS 659/1944 on the basic price of 28½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.	Total per lb. d.
½ in. × 19 gauge ...	12½	40⅝
¾ in. × 19 ,, ...	10½	39½
1 in. × 18 ,, ...	9½	37⅞
1¼ in. × 18 ,, ...	8½	37½
1½ in. × 18 ,, ...	8¾	37⅝
2 in. × 17 ,, ...	10½	38⅝

		£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	per ton	305 5 0
Sheet Zinc, 10 gauge (25 SWG) 5 cwt. lots upwards	per cwt.	6 16 0
do. 12 gauge (23 SWG) do. ...	,,	6 14 0
do. 14 gauge (21 SWG) do. ...	,,	6 12 9
Brass tubes basic price, plus gauge and manufacturing extras	per lb.	1 11¼

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	136 10 0
Lead Water Pipe in coils	,,	137 15 0
Lead Soil Pipe, 10 ft. or over 2 in. to 4 in. dia. ...	,,	139 5 0
do. over 4 in. dia.	,,	141 5 0
Lead Gas or Untinned Compo pipe	,,	139 5 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	,,	4 0
1 cwt. do. 3 cwt.	,,	6 0

Smaller quantities than 1 cwt. priced specially.
Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.
Allowance for Old Lead, collected £92 0s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	7 6 6
do. White do. do. ...	,,	7 14 3
Sirapite Coarse do. do. ...	,,	7 9 0
do. Fine do. do. ...	,,	7 17 0
Blue Lias Lime in 6-ton loads	,,	6 9 6
Hydrated Lime do.	,,	5 12 6
Lump Lime do.	,,	5 2 0
White Keen's or Parian Cement in 1-ton loads ...	,,	10 4 0
Pink Keen's or Parian Cement in 1-ton loads ...	,,	9 18 6
Granite Chips in 6-ton loads	,,	2 6 3
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery. Delivered site ...	per yd.	2 2
1,200 yds.	,,	2 1½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	,,	2 5
1,200 yds.	,,	2 4½

PAINT AND DISTEMPER

Delivered London area		£ s. d.
Ceiling Distemper	per cwt.	1 12 0
Washable Distemper	,,	5 12 0
Gloss Paint	per gal.	2 13 0
Snowcem cement paint (in 1 cwt. drums)	per cwt.	3 11 0
LEAD PRODUCTS AND OILS.		
Ground White Lead, 1 cwt. kegs	per cwt.	8 10 0
Genuine White Lead Paint, 20 gal. lots in 1 gal. tins	per gal.	3 0 0
Genuine Red Lead, Dry, 1 cwt. keg	per cwt.	6 16 3
Genuine Linseed Oil Putty, 1 cwt. keg	,,	2 7 0
Size XD quality, 28 lb.	per tin	9 0
Raw Linseed Oil (5 gal.) Drums extra	per gal	11 6
Boiled Linseed Oil (5 gal.) do.	,,	12 0
SUNDRIES.		
Turpentine substitute (5 gal.) drums extra	,,	5 6½
do. do. (40 gal.) do. do.	,,	4 8½
Solignum, Brown (5 gal. cans) Exterior	,,	6 6
Creosote (40 gal. barrels)	,,	2 0
Paste Powder (1 lb. packets)	per lb.	1 6
White Lining Paper	per piece	1 0

VARNISHES, etc.

Delivered London area.		£ s. d.
Oak Varnish, Outside or Inside	per gal.	1 12 6
Oak Pale Copal do.	,,	1 15 0
Hard Drying Oak for Inside	,,	1 17 6
Crystal Paper Varnish do.	,,	2 2 6
Eggshell Flat Varnish do.	,,	2 2 6
Finest Carriage Varnish	,,	2 10 0
Front Door Varnish	,,	1 17 6
Japan Gold Size	,,	1 10 0
Black Japan	,,	1 5 0
Brunswick Black	,,	1 0 0
Berlin Black	,,	1 5 0
Terebene	,,	1 5 0
Knotting (1 gal. bottles free)	,,	2 0 0
French and Brush Polish (do.)	,,	1 13 0

GLASS

Delivered London area.	Per ft. super s. d.
18 oz. Sheet Glass, Ordinary Glazing Quality. Cut Sizes ...	5½
24 oz. ,, ,, ,, ,, ,, ,, ...	7½
26 oz. ,, ,, ,, ,, ,, ,, ...	9½
32 oz. ,, ,, ,, ,, ,, ,, ...	1 0
⅛ in. Rolled Plate	9
⅛ in. and ¼ in. Rough Cast	1 0
⅛ in. Figured Rolled and Cathedral, Standard patterns: White	9
do. Standard Tints	1 4½
do. Special Tints	2 9
⅛ in. Cross Flexon, Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1 1
¼ in. Wired Cast	1 2
¼ in. Georgian Wired Cast	1 2½

Hollow Glass Blocks—		Each
P.B.2	5⅞ × 5⅞ × 3⅞ in....	2 9
P.B.3	7⅞ × 7⅞ × 3⅞ in....	4 2
P.B.32	7⅞ × 7⅞ × 3⅞ in....	4 2
Radiused Corner Blocks to match up with—		
P.B.2	... ...	5 3
P.B.3	... ...	6 9
P.B.32	... ...	6 9

¼ in. Polished Plate Glass, G.G. Quality—		Per ft. super
In plates not exceeding	2 ft. sup.	3 7
,, ,, ,,	5 ft. sup.	4 5
,, ,, ,,	45 ft. sup.	5 1
,, ,, ,,	100 ft. sup.	5 6

¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—

Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	8 4
Not exceeding 180 ft. sup., or ditto	11 3
Not exceeding 200 ft. sup., or ditto	16 0

Plates exceeding 200 ft. sup. prices on application.
Substances other than ¼ in. Polished Plate at Special Prices.

Quantity Tariff—Sheet and Sundry Glass
The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity.	Per ft. super s. d.
18 oz. sheet O.Q.	3,000	4
24 oz. ,, ,, ...	2,000	5½
26 oz. ,, ,, ...	2,000	7½
32 oz. ,, ,, ...	2,000	9½
⅛ in. Rolled Plate	1,000	7½
⅛ in. Figured Rolled and Cathedral Standard Patterns, White	1,000	7½
⅛ in. Cross Flexon, Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte	1,000	10½
⅛ in. and ¼ in. Rolled Plate or Rough Cast ...	2,000	10½
¼ in. Wired Cast, Hexagonal	2,000	11½
¼ in. Georgian Wired Cast	2,000	1 0½

The Builder

CURRENT RATES OF WAGES

AS FROM MAY 24, 1954. **(Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)**

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1	A2	A3
Craftsmen	3/9	3/8½	3/8	3/7½
Labourers	3/3½	3/3	3/2½	3/2

Town.	Grade.
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A2
Accrington	A
Addlestone	A
Aldeburgh	A2
Aldershot District	A2
Alfreton U.D.	A
Alnwick	A1
Altrincham	A
Amble	A1
Amersham	A1
Ammanford	A
Andover	A2
Ardingly	A2
Arundel	A2
Ascot	A2
Ashby-de-la-Zouch U.D.	A
Ashby Woulds U.D.	A
Ashford (Kent)	A2
Ashford (Middlesex)	A
Ashington	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A2
Atherstone R.D. (parts of)	A
Aylesbury	A2
Aylesby (Yorks)	A
Aylesham	A2
Bagshot	A2
Bakewell U.D.	A2
Banbury	A2
Barnard Castle U.D.	A
Barnoldswick U.D.	A1
Barnsley	A
Barrow-in-Furness	A
Barrow-upon-Soar R.D. (exc. Thrussington A2)	A
Barry	A
Basford R.D. (exc. Willough-by-on-the-Wolds A2)	A
Basingstoke	A1
Bath	A
Batley	A
Baxterley	A1
Beaconsfield & District	A1
Beamish	A
Bearl	A
Bearpark	A
Beccles	A2
Bedale R.D.	A
Bedford	A
Bedlington	A
Bedwas	A
Beeston & Stapleford U.D.	A
Belper U.D.	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick District	A
Beverley	A
Bexhill-on-Sea	A2
Biggleswade	A2
Billericay	A
Billing	A
Billingham U.D.	A
Bilsthorpe	A
Birchington	A2
Birkenhead	*
Birmingham C.B.	†A
Bishop Auckland	A
Bishop's Stortford	A
Bispham	A
Blackburn	A
Blackpool	A
Blackwell R.D.	A
Blaydon U.D.	A
Blidworth	A
Blyth	A
Bognor Regis	A2
Boldon U.D.	A
Bolsover U.D.	A
Bolton	A
Bourne End	A1
Bournemouth District	A
Bracknell	A2
Bradford	A
Bradford-on-Avon	A2
Braintree	A1
Brenchley, County of	‡A2
Brent Knoll	A2
Brentwood	A
Bridlington	A
Brierfield	A
Brighouse	A
Brighton	A
Bristol	A
Broadstairs	A2
Bromsgrove U.D.	A
Brough	A
Broughton (Cheshire)	A
Buckley	A
Bungay	A2
Burnham-on-Crouch	A2
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Calder Valley	A
Cambridge	A
Cannock U.D.	A
Canterbury	A2
Cardiff	A
Cardiganshire, County of	‡A2
Carlisle	A
Carmarthenshire, Cnty of	‡A2
Carnarvonshire, Cnty. of	‡A3
Carnforth	A
Castleford	A
Caterham	A
Chapel-en-le-Frith	A
Charmy Down	A
Chatham & District	A1
Cheadle (Staffs) R.D.	A
Chelmsford	A
Cheltenham	A
Chepstow	A1
Chertsey	A
Chester	A
Chesterfield M.B.	A
Chesterfield R.D.	A
Chester-le-Street U.D.	A
Chichester	A2
Chippenham (inc. Chippen-ham Within and Harden-huish	A2
Chorley	A
Clacton	A1
Cleethorpes	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville U.D.	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett	A
Conway	A1
Cornwall, County of	‡A2
Coventry C.B.	A
Cranbrook	A2
Cranleigh	A2
Crawley (Sussex)	A2
Crewe	A
Cromer	A1
Crowborough	A2
Cuckfield	A2
Dalton-in-Furness	A
Darlington District	A
Darwen	A
Deal	A2
Denbigh Town	A2
Derby C.B.	A
Devizes	A2
Devon, County of	‡A2
Dewsbury	A
Didcot	A2
Diss	A2
Doncaster C.B.	A
Dorking	A
Dorset, County of (except-ing Poole, Swanage and Wimborne A1)	A2
Dover	A2
Dovercourt	A1
Driffield U.D.	A1
Droitwich M.B.	A1
Dudley M.B.	A
Dunstable	A
Durham City	A
Eastbourne	A1
E. Glam. & Mon. Val.	A
East Grinstead District	A2
Eastwood (Notts.) U.D.	A
Ebbw Vale & District	A
Edenbridge	A2
Ely	A2
Epping	A
Exeter	A
Fakenham	A2
Falmouth	A2
Fareham	A
Faversham	A2
Felixstowe	A1
Filey U.D.	A
Fleetwood	A
Flint	A
Folkestone	A2
Frinton	A1
Frome	A1
Gainsborough U.D.	A
Gateshead	A
Gillingham (Kent)	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A2
Godalming	A2
Goole M.B.	A
Gosport	A
Grantham M.B.	A
Gravesend	A
Great Yarmouth	A
Grimsby C.B. & R.D.(part)	A
Grimsby R.D. (remainder)	A2
Guildford District	A2
Guilsborough	A1
Guiseley	A
Halesowen M.B.	A
Halifax	A
Halstead	A2
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate	A
Hartlepool	A
Harwich	A
Haslemere	A2
Hastings	A2
Hatfield (Herts.)	A
Haywards Heath	A2
Hemel Hempstead	A
Henley-on-Thames	A2
Hereford	A2
Herefordshire, Cnty. of	‡A2
Herne Bay	A2
Hertford	A
Hexham U.D.	A
Heysham	A
High Wycombe	A1
Highworth	A2
Hinckley U.D.	A
Hitchin	A
Hoddesdon	A
Horley	A2
Horsham	A2
Horwich	A
Huddersfield	A
Hull	A
Hunstanton	A2
Huntingdon (Staffs)	A
Ilkley	A
Ingatestone	A1
Ipswich	A
Isle of Sheppey	A2
Isle of Thanet	A2
Isle of Wight	A2
Jarrow M.B.	A
Keighley	A
Kendal	A
Kenilworth U.D.	A
Kettering M.B.	A
Keynsham	A
Kidderminster M.B.	A
King's Lynn	A1
Kingskerswell	A1
Kingsteignton	A1
Kirkham	A
Knaresborough U.D.	A
Knowle	A1
Lancaster	A
Leamington M. B.	A
Leatherhead	A
Leeds	A
Leicester C.B.	A
Leighton Buzzard	A1
Letchworth	A1
Lewes	A2
Lichfield M.B.	A
Lincoln C.B.	A
Littlehampton	A2
Liverpool	*
Llandudno	A1
Llanelly	A
London	*
Long Eaton	A
Loughborough M.B.	A
Louth M.B.	A2
Lowestoft	A2
Loxton	A2
Luton	A
Lyneham (Devon)	A2
Macclesfield	A
Maidenhead	A1
Maidstone	A1
Maltby	A
Maldon (Essex)	A1
Malvern U.D.	A1
Manchester	A
Manningtree	A1
Mansfield M.B.	A
March	A2
Margate	A2
Market Harborough U.D.	A
Maryport	A
Matlock U.D.	A1
Melksham	A2
Melton Constable	A2
Melton Mowbray U.D.	A1
Merthyr	A
Middlesbrough	A
Middleton	A
Middlewich	A
Milford Haven	A1
Morecambe	A
Morley	A
Mundesley	A2
Nantwich	A
Nelson	A
Newark-on-Trent R.D.	A1
Newbury	A2
Newcastle-on-Tyne	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A2
Newton Abbot	A1
Northallerton Dist.	A
Northampton C.B.	A
North Shields	A
Norton Radstock	A1
Norwich	A
Nottingham C.B.	A
Nuneaton M.B.	A
Oakham U.D.	A2
Oldham	A
Ongar	A
Ormskirk	A
Ossett and Horbury	A
Oxford	A
Oxted	A1
Paignton	A1
Peterborough	A
,, Soke	A1
Pickering	A3
Plymouth	A
Pontefract	A
Pontypridd District	A
Portishead	A
Portland Stoneyards	A
Portsmouth	A
Port Talbot	A
Preston	A
Pudsey	A
Pulborough	A2
Radnorshire, County of	‡A2
Ramsgate	A2
Rayleigh	A
Reading	A
Redcar B.	A
Redditch U.D.	A
Redhill and Reigate	A
Ripon	A3
Rochdale	A
Rochester	A1
Rotherham	A
Rugby M.B.	A
Saffron Walden	A2
St. Albans	A
St. Helens	A
St. Neots	A2
Salisbury City	A2
Salisbury Plain	A2
Sawbridgeworth	A
Saxmundham	A2
Scarborough	A
Scunthorpe	A
Selby	A
Sevenoaks	A1
Sheerness	A2
Sheffield	A
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury M.B.	A
Sittingbourne	A2
Skegness U.D.	A1
Skipton U.D.	A
Sleaford U.D.	A2
Slough	A1
Smethwick C.B.	†A
Snettisham	A2
Somerset, County of	‡A2
Southampton	A
Southend-on-Sea Dist.	A
Southport	A
South Shields C.B.	A
Spalding U.D.	A2
Stafford M.B.	A
Staines	A
Stamford M.B.	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton R.D.	A
Stockton-on-Tees	A
Stoke-on-Trent C.B.	A
Stoke Orchard	A1
Stourbridge M.B.	A
Stourport U.D.	A
Stowmarket	A1
Stratford-on-Avon M.B.	A
Sunderland District	A
Sunningdale	A1
Sutton Coldfield M.B.	A
Swaffham	A2
Swanage	A1
Swansea	A
Swindon	A1
Swinton U.D.	A
Tamworth M.B.	A
Tenterden	A2
Tewkesbury	A1
Thames Haven	A
Thetford	A2
Thorpe Bay	A
Thurrock U.D.C. Area	A
,, North of, to Billericay	A
Tilbury	A
Todmorden	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Trowbridge	A2
Tunbridge Wells	A1
Tynemouth C.B.	A
Uppingham (Salop)	A1
Uttoxeter U.D.	A2
Wakefield	A
Wallsend B.	A
Walsall C.B.	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A2
Warrington	A
Warwick M.B.	A
Wellington U.D.	A
Wells (Norfolk)	A2
Welwyn	A
Welwyn Gar. City	A
West Bromwich C.B.	A
Westbury	A2
Westcliff-on-Sea	A
Westerham	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth	A1
Whitby U.D.	A1
Whitstable and District	A2
Wickford	A
Widnes	A
Wigan	A
Wigton	A2
Willington	A
Wilmslow	A
Wilts. County of	‡A2
Winchester	A1
Windermere	A3
Windsor and Eton	A1
Wisbech	A2
Witham	A1
Woking (District)	A1
Wokingham	A2
Wolverhampton C.B.	A
Woodbridge	A2
Worcester C.B.	A
Workington	A
Worksop M.B.	A
Worthing	A2
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A2
York	A

*For Birkenhead, Liverpool and London the rates are:—Craftsmen, 3s. 10½d.; Labourers, 3s. 5d. In the case of London the rate beyond the 12-mile radius is:—Craftsmen, 3s. 10d.; Labourers, 3s. 4½d. † Plus 2d. per working day. ‡ This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters, Joiners and Plumbers in all towns and districts receive 2d. per day Tool Allowances.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 2s. 8d. per hour. Women introduced to carry out work other than craft processes, 2s. 4d. per hour.

For Building Trade Wages in Scotland see page 442

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IN METAL WINDOW DESIGN
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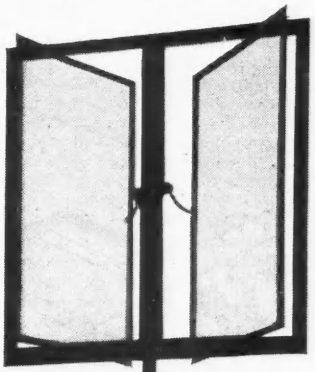
pioneers since 1818 with the cup pivot, lok'd bar joint, cam opener, 2-point handle and friction hinge



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CABLE GEAR *types of singly or in any required point*

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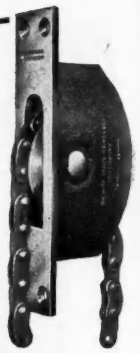

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FOR ROOF AND FLOOR CONSTRUCTION

MARLEY EAGLE

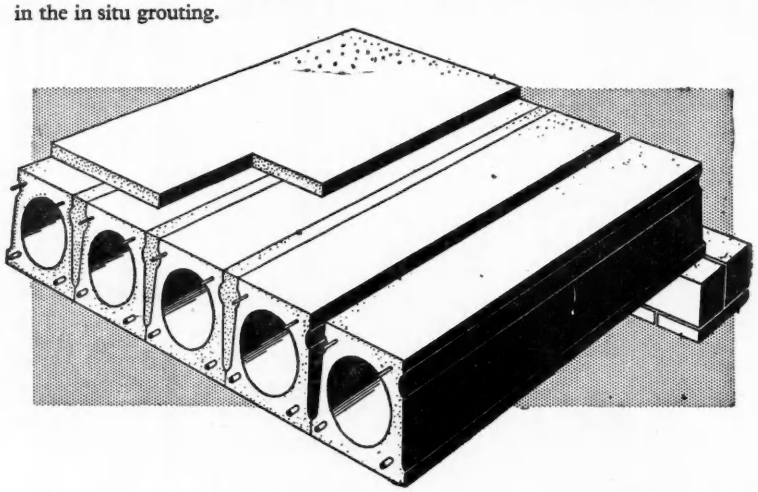
PRE-CAST CONCRETE BEAMS

For all normal spans and loadings.
Quotation on receipt of details.

DELIVERY 21 DAYS

Marley Concrete Products also include Concrete Garages and General Purpose and Industrial Buildings.

The narrow section of these beams allows easy handling and speedy erection without elaborate equipment and without sacrifice of strength. *A 10 ft. unit weighs less than 200 lbs.* The manufacturing process ensures the steel reinforcement being accurately placed. The recesses in the sides of the beams accommodate any continuity steel that may be required, allowing it to be well bedded in the in situ grouting.



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SURREY CONCRETE LIMITED, PEASMARSH, GUILDFORD, SURREY. *Guildford 62986*
SHURDCRETE LIMITED, SHURDINGTON, Nr. CHELTENHAM, GLOUCESTER. *Shurdington 334/5*
THE MARLEY TILE CO. LTD., STIFFORD RD., STH. OCKENDON, Nr. ROMFORD, ESSEX. *South Ockendon 2201*
MARLEY CONCRETE, WATERLOO, POOLE, DORSET. *Broadstone 626*

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Fabrication in light alloy by Payter often shows surprising economies. For the special-duty one-off job or the larger contract call on the experience of Payters

PAYTERS *Fabricators in Light Alloys*

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No. 30. ALL PURPOSE TOOL GIVING ALL CUTS
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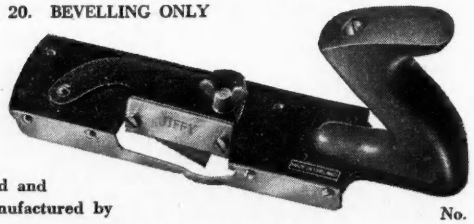

No. 20

Sold and manufactured by

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Trade enquiries invited

TRADE NEWS

PUBLIC WORKS EQUIPMENT

The display of C. H. Johnson (Machinery), Ltd., Adswood, Stockport, at the Public Works and Municipal Services Exhibition, Olympia, London, to be held from November 15 to 20, will include dumpers, portable centrifugal pumps, a "Johnson Super" power rammer, and flexible-shaft poker-type vibrators. Two models of the vibrators will be shown, model 3a incorporating a Villiers Mk. 25 petrol engine with jackshaft-type drive take-off, a 2¾-in. diameter poker vibrator, and possessing a frequency of 10,000 vpm. Model 4 is a heavy-duty machine incorporating a Villiers Mk. 40 petrol engine mounted on a turntable, with a centrifugal clutch drive off-take to the countershaft. Provision is made for auxiliary drives from the power unit to operate grinders, buffers, polishers, etc. Automatic overload protection gear to the flexible shaft is provided.

AGENTS APPOINTED

Rentokil, Ltd., manufacturers of timber fluid and insecticides, have appointed Messrs. Boileau and Boyd, Ltd., of 91-93 Bride-street, Dublin, C7, as their sole agents in Eire.

ENGINEER WINS GOLD MEDAL

Mr. Michael Amberg, who competed in the Empire and Commonwealth Games at Vancouver, has won a gold medal for the individual sabre as a member of the England fencing team, which gained five gold medals out of a possible seven. Mr. Amberg is a sales engineer in the Westminster office of the Express Lift Co., Ltd., of which his father, Mr. V. H. C. Amberg, is managing director. Last year, at the age of 27, he was the British Open Sabre champion.

HEAVY-DUTY PAINT

International Paints, Ltd., Grosvenor-gardens House, SW1, have recently had paints manufactured by their subsidiary company, International Paints of New Zealand, Ltd., specified by Kanieri Gold Dredging, Ltd., of Greymouth, on the West Coast of the South Island of New Zealand, for use on a large gold dredge. The interior of the pontoon which supports in fresh water the upper structure of the gold dredge, and is divided into compartments with bulkheads similar to a ship, will be painted with "Brown Primocon" bare plate primer and "Interlast" hold paint, chosen because of its high degree of light reflection. "Silver Primocon" bare plate primer for below-water surfaces is being applied to the exterior under-water section of the pontoon.

CONVECTOR GAS FIRE

The Portcullis "Bamburgh" convector radiant gas fire introduced to the market by Bratt Colbran, Ltd., 10, Mortimer-street, W1, has no refractory backing behind the radiants. Instead there is a metal pressing finished in a special heat-resisting vitreous enamel, behind which is a vertical passage through which air drawn from the fender openings passes upwards to be discharged into the room via a grille in the fire head. It is understood that this heat exchange system increases the overall heating efficiency by some 25 per cent., resulting in an economy of one-fifth in gas consumption. The "Bamburgh" is the outcome of suggestions made by the Northern Gas Board, and in achieving the final design the makers collaborated with the Board's Appliance Laboratory at Newcastle-on-Tyne. Completely self-contained and dimensioned to cover most existing fireplace openings, the fire is included in the Gas Council's list of tested and approved appliances.

KIDBROOKE SCHOOL WINDOWS

The metal windows of the Kidbrooke Comprehensive School (illustrated in our issue of August 20) were supplied by Messrs. Henry Hope and Son, Ltd., of Birmingham.

VEHICLE EXHIBITS

The stand of Trojan, Ltd., Purley-way, Croydon, at the Commercial Motor Show due to open at Earls Court, London, on September 24, will feature a selection of their vehicles, including a Trojan diesel 1-ton goods-carrying long-wheelbase chassis fitted with the Perkins P3V 4-stroke 3-cylinder diesel engine, as well as a new export model of a diesel 1-ton pick-up, supplied with a wheelbase chassis 9 ft. 4 in. long instead of a standard 7 ft. 10 in. wheelbase chassis. It is understood to be capable of carrying any load up to one ton for less than 1½d. a mile, and is fitted with an all-metal double-skinned body.

SEALING COMPOUNDS

Sealing compounds designed to accommodate joint movement in concrete and other structures will be featured on the stand of Expandite, Ltd., Chase-road, NW10, at the forthcoming Public Works Exhibition at Olympia. Typical joints will be shown in model form, incorporating such products as Expandite "Rubber Waterstop," which is a flexible water bar for joints in concrete structures, and "PVC Waterstop," a flexible water bar possessing chemical inertness suitable for small structures. The properties will also be demonstrated of "Pli-astic," a rubber bitumen, hot-poured horizontal joint compound for expansion and contraction joints, and "Verti-strip," an extruded rubber-bitumen compound for vertical and inclined joints.

ARCHITECTURAL FITTINGS

The wide range of fittings available to the contemporary architect can be gauged from the pages of the latest catalogue issued by Stedall and Co., Ltd., of 164, High Holborn, WC1. This handsomely bound volume presents for easy reference a selection of the large stocks of architectural fittings marketed by the firm, and covers such items as glass doors, antique ironwork and brassfoundry. The last includes a comprehensive range of fanlight gearing of all types. Preceding the actual catalogue pages are a number of illustrations depicting a few of the more notable buildings for which fittings have been supplied by the company, and among these are Bedford College, the Institute of Medical Research, and the British Vacuum Flask Works at Liverpool. Apart from its use as a reference, the appearance of the volume makes it a decorative addition to any office library.

RUST PREVENTION

Of the 216 exhibitors at the Scottish Industries Exhibition at Kelvin Hall, Glasgow, it has been estimated by Jenolite, Ltd., 43, Piazza-chambers, Covent Garden, WC2, that 115 have adopted the firm's rust-proofing process as part of their production line and factory maintenance. This system of chemical pre-treatment, known as "Jenolizing," is designed to remove existing rust, to prevent it re-forming, and to key the metal-work for subsequent painting.

HOME DECORATING

Use of Bright Colours

THE importance of furnishing and decorating to the health and happiness of the family was stressed by Mr. A .G. Sheppard Fidler, FRIBA, chief architect to the Birmingham City Council, at the opening of a "Colour and Texture Exhibition" staged at the Times Furnishing Co., Ltd., High-street, Birmingham, on September 2.

He believed, he said, that the exhibition would be a guide to householders in decorating and furnishing their homes so that they would become an attractive and cheerful centre for all family life.

"In an industrial city like Birmingham we are grateful for a little colour and brightness," he said.

Housewives were sometimes afraid to go in for light colours and bright furnishings, thinking that dark colours hid the dust, but his experience was that this was not so.

The exhibition, which was organised in association with the Council of Industrial Design, aims to stimulate new ideas in decoration and to offer suggestions on how to make the best use of colour and texture in the home.

The display shows, in full-scale furnished rooms, the relation which should exist between furniture, wall treatments, carpets and fabrics and is in contemporary style.

PERSONAL COLUMN

It is announced by the governing council of FIDOR that they have now appointed MR. R. C. BOTSFORD, BSc(Eng)Lon, ACGI, as technical assistant to the organisation.

Messrs. Cuxson, Gerrard & Co., Ltd., manufacturers of surgical dressings, of Fountain-lane, Oldbury, Birmingham, announce that as from September 1, MR. T. LYNCH, 104, Carter-drive, Havering Park, Romford, Essex, will be their representative for the counties of Norfolk, Suffolk, Essex, Middlesex, Hertfordshire, Huntingdonshire, Cambridgeshire, Bedfordshire and Buckinghamshire.

MR. B. WATSON, managing director of Expandite, Ltd., has left for an extensive tour of Canada and the USA.

Sir W. A. Rose and Co., Ltd., have appointed MR. E. A. PICKERING as their representative for the counties of Hampshire and Dorset, the Isle of Wight and parts of Wiltshire.

BUILDERS' YEAR BOOK

The Eastern Counties Region of the Federation of Master Builders have issued their Year Book for 1954-55, containing a list of members as well as data on the National Working Rules. Copies from the Secretary, Mr. G. M. Willis, 53, Hills-road, Cambridge.

EMPLOYMENT FIGURES

The number of persons engaged in employment in the building and contracting industries remained unaltered during July, according to figures issued by the Ministry of Labour and National Service, the number employed at the end of the month being 1,422,000. The total working population, it was estimated, increased by 50,000.

NEW MERSEY BRIDGE

A new bridge over the Mersey at Runcorn, to replace the present transporter bridge, has been approved in principle by the Minister of Transport. It is proposed to construct a road bridge 1,100 ft. long, and at its highest point the bridge will be 280 ft. high. It will be 80 ft. above the Mersey, and will also span the Manchester Ship Canal. The cost is estimated at £1,681,000. Lancashire and Cheshire County Councils are to be asked to promote a Bill in Parliament for the necessary powers to build the bridge.

NEW ZEALAND PLANS MORE HOUSES

State Assistance for Builders and Purchasers

From a Correspondent

WITH a growing population, which has been increased by nearly 23,000 immigrants during the post-war period, New Zealand, like many other countries, is finding the provision of housing accommodation something of a problem.

To cope with this problem the New Zealand Government have taken a number of steps, which, it is hoped, will make it easier for people to buy houses and also easier for builders and contractors to construct them.

The first step, in 1946, was to establish the Government's first Department of Housing Construction, which is now a division of the Works Department. Up to 1953, this department, using the services of private contractors, had built about 40,000 new homes and had encouraged private builders to press on with housing construction.

In spite of this substantial effort, a survey undertaken in mid-1953 revealed that only sufficient homes had been built during this period to meet current needs. No progress had been made in reducing the tremendous demand which had accumulated over the years.

ASSESSING THE NEED

At a National Housing Conference held in August last year it was stated that 206,000 houses would be needed in the following ten years. Since the building industry in New Zealand is already working at full capacity this posed a difficult problem, involving an increase of output by 25 per cent.

Nevertheless, it was considered that by streamlining construction methods; by using modern designs, which allowed for the saving of both space and materials; by undertaking more group building schemes; and by employing alternative materials to a greater extent, e.g., synthetic building boards in place of timber, more houses could be built. In addition, it was felt that building costs, if not actually reduced, could at least be kept in check.

To assist the prospective owner to build his own house the New Zealand Government has introduced a scheme which makes mortgage finance less difficult. Under the scheme the Government guarantees to the private lending institutions, such as insurance companies and building societies, the difference between the proportion (usually two-thirds) normally lent by them and 90 per cent. (with a maximum of £2,200) of the valuation of the new property. The limit of suspensory loans—a conditional subsidy on new houses—is also increased and the full loan of £200 is now available on houses up to £2,300 in value, the full amount decreasing *pro rata* as the value of the house increases above that figure.

The Government is particularly anxious to help the small prospective home owner. Sets of plans and specifications are being offered at a cost of not more than £5, and a "Build Your Own" scheme has been launched under which technical colleges are teaching amateur builders certain aspects of house construction so that they can reduce costs by doing some practical work on their home. Partially complete Government houses are also being handed over to purchasers who will complete by doing the painting, some internal finishing, laying of paths and building of tool-sheds.

To assist the builder the Government is extending its housing loan terms up to 35 or 40 years; giving assistance to private organisations to develop housing schemes; and encouraging employers to build for employees.

GOVERNMENT GUARANTEE

To protect builders from possible loss on speculative building schemes the Government undertakes to buy a certain number of a group if they cannot be sold privately and to let them as State rental homes. The builder submits plans and specifications for the group of houses he proposes to build to the State Advances Corporation and a fair price to be paid by the corporation in the event of its having to take over the houses is agreed.

This scheme enables builders to construct ahead of demand, to plan ahead and to make the best economic use of larger building sites and building programmes. Saving is effected on site preparation work, drainage, sewerage, water supply and electric power facilities. Some 2,500 houses are already planned under this scheme. These are in groups as small as three and as large as 200.

The buyer also benefits under the scheme by reduced costs and from the checking of plans and specifications by the State Advances Corporation. He also benefits from inspection by the corporation to ensure that the work and materials come up to the good standard laid down. Loan finance, too, is facilitated in this way.

Local authorities are also being encouraged to enter the home-building field and, as a temporary measure, to relax certain stringent building codes.

"THE BUILDER"

COST of BUILDING CHART

Current Edition Ready

THE Cost of Building Chart which Mr. H. J. Venning, FRICS, first prepared in 1952 *for "The Builder" and reprinted in* 1953, *has now been brought up to date to include current materials prices and the wages increases of* 1*d. per hour* (*granted as from February* 1) *and of* 1½*d. per hour awarded by the National Joint Council to take effect on May* 24.

The chart shows (1939 *being taken as datum at* 100) *that the level of building costs now stands at* 332, *a rise since January*, 1953, *of* 12 *points.*

The chart and accompanying table of wages increases and guarantees since 1939 *are being reprinted on light card. Copies may be ordered from the Publisher, "The Builder," The Builder House, Catherine-street, Aldwych, WC2, price* 1*s. each, plus* 3*d. postage for any number of copies up to* 12. *Orders for* 12 *or more charts will be sent post free. Cash should accompany orders.*

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Harold Walker (Constructions), Ltd. (536369.) Regd. July 30, 30, Nelson-rd., Edmonton, N9, bldrs., etc. Nom. cap.: £2,000. Dir.: H. A. Walker, 30, Nelson-rd., Edmonton, N9.

Testers (Builders), Ltd. (536406.) Regd. July 31, 115/120, Abbey House, Westminster, SW1. Nom. cap.: £100. Dir.: J. A. Constantine, Vale Royal Private Hotel, Tunbridge Wells.

Slater & England, Ltd. (536427.) Regd. July 31, mnfrs. of mechanical handling equipment, etc. Nom. cap.: £2,000. Dir.: C. Slater, 105, Charter-ave., Coventry.

Crawshaw Brothers Builders (Blackpool), Ltd. (536440.) Regd. July 31, 26, Edward-st., Blackpool, bldrs., etc. Nom. cap.: £1,500. Dir.: A. Vass, 149, Hornby-rd., Blackpool.

Mastic Jointing and Sealing Co., Ltd. (536442.) Regd. July 31, mastic jointing, sealing and re-sealing of expansion joints in concrete, bldrs., etc. Nom. cap.: £1,000. Dir.: W. H. Collins, 8, Charles-rd., Handsworth, Birmingham.

A. H. Charman (Crawley), Ltd. (536445.) Regd. August 3, bldrs. and contractors, etc. Nom. cap.: £1,000. Dirs.: D. Etherton and Mrs. I. M. Etherton, Ellesmere, Woolborough-rd., Crawley, Sussex.

J. Potter (Builder), Ltd. (536458.) Regd. August 3, 39, King-st., Blackpool. Nom. cap.: £5,000. Dir.: J. Potter, 41, Patterdale-ave., Blackpool.

Premix Concrete, Ltd. (536464.) Regd. August 3, 1, Lower Wootton, Boar's Hill, nr. Oxford, mnfrs. of concrete and concrete products, etc. Nom. cap.: £20,000. Dir.: W. C. Amey, Rowleigh House, Besselsleigh, nr. Abingdon, Berks.

Seivad, Ltd. (536467.) Regd. August 3, 14, Ironmonger-la., EC2, bldrs. etc. Nom. cap.: £5,000. Dir.: B. K. Davies, 674, Finchley-rd., NW11.

Wentworth Construction Co., Ltd. (536473.) Regd. August 3, St. Wilfred-rd., Bridlington, E. Yorks, public works contractors, bldrs., decorators, etc. Nom. cap.: £5,000. Dirs.: W. C. Watts and Mrs. I. Watts, Wentworth, 27, Fourth-ave., Bridlington.

Healey Brothers (Decorators), Ltd. (536479.) Regd. August 3, 23, St. Peter's-ave., Anlaby, E. Yorks, painters and decorators. Nom. cap.: £2,000. Dirs.: Sarah A. Healey and J. Healey, 23, St. Peter's-ave., Anlaby, E. Yorks.

S. Hickman & Sons (Builders), Ltd. (536482.) Regd. August 3, Braeside, Loosley-row, Princes Risborough, Bucks, bldrs., plumbers, decorators, etc. Nom. cap.: £5,000. Dir.: S. O. Hickman, Braeside, Loosley-row, Princes Risborough, Bucks.

Crow Wood Estates, Ltd. (536490.) Regd. August 4, 81, Victoria-rd., Widnes, bldr. and contractor. Nom. cap.: £1,000. Dir.: J. Abrahamson, 26, Fairfield-rd., Widnes.

OFFICIAL NOTIFICATION

Rents Charged by Housing Associations and Trusts

UNDER Section 33 of the Housing Repairs and Rents Act, 1954, lettings by housing associations and trusts are excluded from the Rent Restriction Acts, and the Ministry of Housing and Local Government have accordingly issued a circular (No. 58/54) to housing authorities, asking them to view sympathetically applications by housing associations for increased rents for houses built under Section 94 of the Housing Act, 1936, and earlier enactments. The circular also pointed out that the rents of houses erected by housing associations under the Housing Acts of 1919, 1923 and 1924 are not regulated by formal agreements between associations and local authorities, but are subject to statutory restrictions and cannot be altered without the Minister's agreement. Proposals received from housing associations which affect the rents of these houses should therefore, states the circular, be sent to the Minister for consideration, accompanied by any comments the local authority may desire to make on them.

Clause 6 of the model form of agreement for the purpose of Section 94 of the Housing Act, 1936, has been revised. It provides, like the previous model, for the fixing of a maximum aggregate rent approved by the local authority, but has been amended to allow for any subsequent revision that may be agreed upon between the two parties and approved by the Minister. A copy of the revised model has been sent to local authorities.

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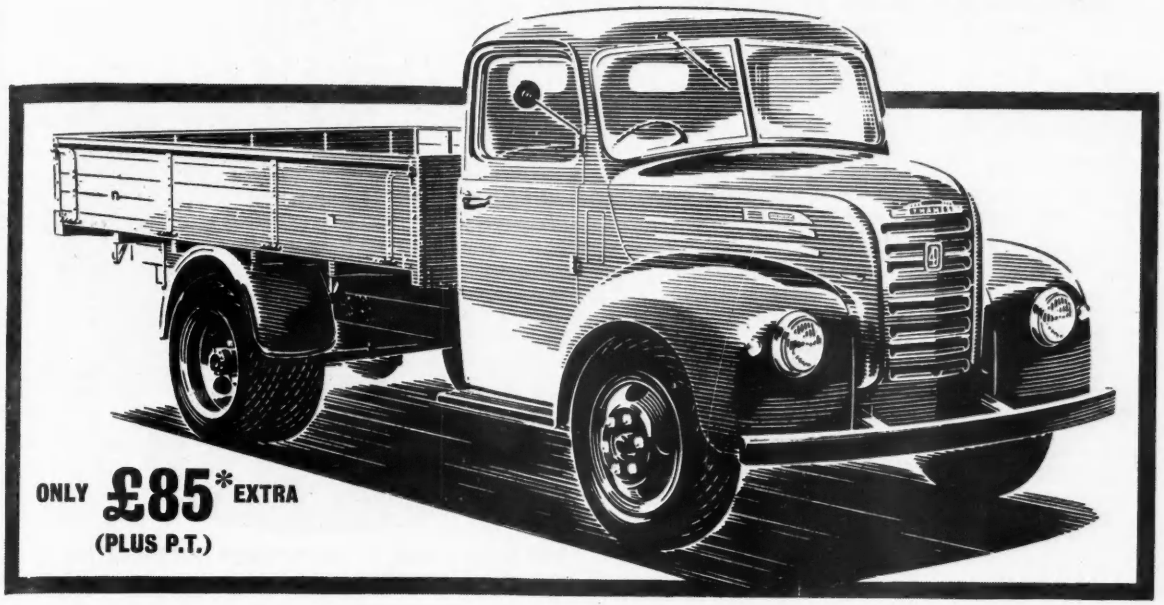

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*2 TON TRUCK	£596 + P.T. £94. 1. 11	£681 + P.T. £111. 6. 5	
3 TON 128" Wheelbase CHASSIS & CAB	£558 + P.T. £98. 0. 9	£658 + P.T. £118. 8. 2	*includes exhauster equipment*
3 TON 157" Wheelbase TRUCK	£674 + P.T. £106. 16. 3	£774 + P.T. £127. 4. 6	*includes exhauster equipment*

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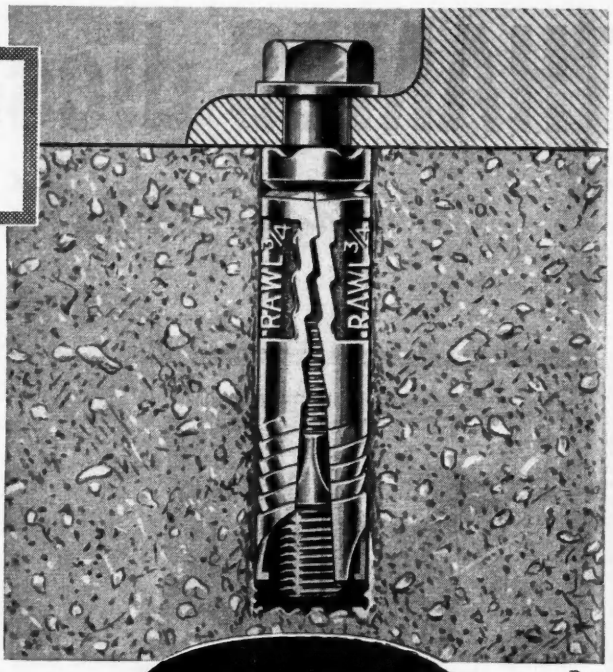

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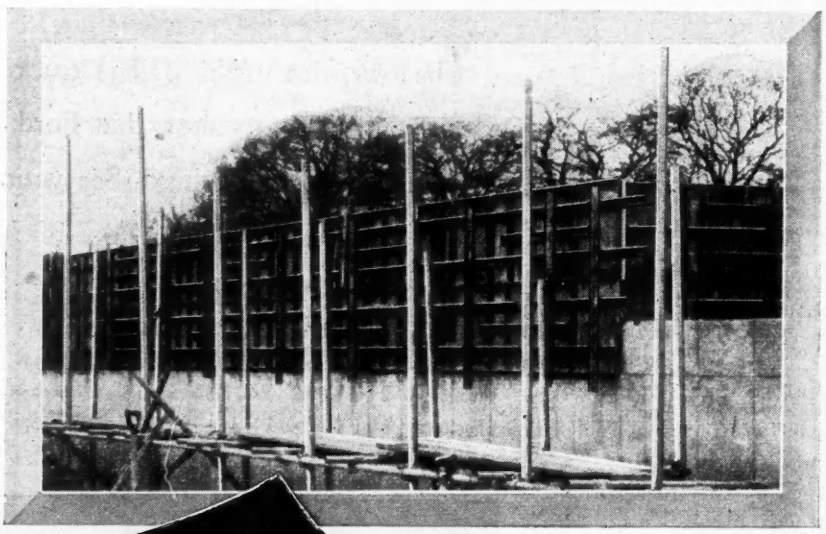

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OVERSEAS BUILDING

[*From Our Own Correspondents*]

Afghanistan.—The Afghanistan Government is interested in a scheme to build an international airport at Kandahar. Representatives of the International Civil Aviation Organisation have already selected a suitable site some 30 miles south of Kandahar on the main road to Chaman. The area is large enough to accommodate the most up-to-date types of four-engined aircraft. Cost is estimated in the region of $3m. . . . Negotiations are also proceeding with Russia for the construction of a pipe-line between Termez and Mazor-i-Sharif to facilitate the supply of Russian petrol to Afghanistan.

**Australia.*—The Department of the Co-ordinator-General of Public Works, Queensland, Australia, is calling for tenders for the supply of complete plant to convey, dry, grind, weigh and bag material from the untreated stockpile to the finished product (including all supporting steelwork, motors, drives and bins suitable for the conditions and location), necessary for the production of Pozzolan for Tully Falls Hydro-electric Project.

Tenders should be enclosed in sealed envelopes, endorsed "Tender Pozzolan Plant," and addressed to the Secretary, Department of the Co-ordinator-General of Public Works (Queensland), Executive Building, George-street, Brisbane, Australia. The closing date for receipt of tenders is 12 noon on November 29, 1954.

Inquiries by telephone should be made to Chancery 4411, Ext. 738 or 771, quoting ref. ESB/20988/54.

**British East Africa.*—Denovan and Co., Ltd., PO Box 109, Nairobi, Kenya, have asked the UK Trade Commissioner at Nairobi for assistance in securing agencies from UK firms for sanitaryware, made of earthenware, and fittings; and high and low level WC cisterns.

Firms interested in this inquiry should write direct to Denovan and Co., Ltd., giving full details of their offers. Telephone inquiries to Chancery 4411, ext. 776, quoting ref. ESB/20860/54.

**Ceylon.*—It has been announced by the Minister of Finance that the International Bank for Reconstruction and Development has now approved a loan of $19.1m. to Ceylon for Stage II of the Ceylon Hydro-electric Development Scheme. This loan will be used to meet the external expenditure in connection with Stage II of the Development Scheme. The total cost of Stage II is estimated at Rs.140m. When complete the hydro-electric scheme will provide 150,000 kw. The first stage, which has been operating since 1951, provides 25,000 kw, and the second stage, which is now about to be undertaken, will provide a further 25,000 kw. . . . It has been reported that an Indian industrialist is interested in accepting the Prime Minister of Ceylon's invitation to foreign capitalists to set up factories in Ceylon. The projects which have been mentioned in this connection are a second cement factory (to supplement the output of the existing Government factory), a sugar plantation and refinery, a silk factory and a new factory for the manufacture of tea chests.

Greece.—Work has begun in Greece on the construction of a building in which will be housed all the various services of the Army, Navy and Air general staffs, on the same lines as the "Pentagon" building in Washington. The building is to be ready in about two years' time.

Hong Kong.—Demolitions, prior to erecting a new building for the Wing On Life Assurance Company, are to start next month in Hong Kong. The new building will be of 14 storeys and will stand on a 6,000 sq. ft. site. Its estimated cost is said to be well over £150,000. The building will be air-conditioned and equipped with three fast passenger lifts. . . . Two new blocks of flats are also scheduled for construction, one of 15 storeys and the other of 12 storeys. . . . According to recent Press reports the Anchor Precision Corporation of Westbury, New York, is to participate in building a slide fastener factory in Hong Kong. The project will be undertaken in conjunction with the South Sea Textile Manufacturing Company, one of the most important cotton spinning and weaving mills in the Colony.

India.—It is reported that the largest irrigation project under consideration for inclusion with India's second 5-Year Plan is a dam on the River Ramganga, two miles from Kalagarh, in Garhwal. This project is estimated to cost about £18m. The preliminary report suggests that there will be a dam of some 330 ft. high with a storage capacity of 1.78 million acre ft., and that a generating station will be installed to produce 91,000 kW. . . . A committee set up recently to investigate the possibility of a synthetic oil industry has now advised that such an industry should be established in India as soon as possible. The committee is now considering the suitability of various locations for such a plant and is to meet again in Delhi soon. . . . The Tata Iron and Steel Co. is to receive a loan from the Government of nearly £10m. to assist modernisation and expansion of plant and buildings. Leading industrialists are being invited by the Ministry of Commerce and Industry to set up a State Industrial Development Corporation. This envisages the planning of several projects which will necessitate the building of factories, warehouses, communications, and housing schemes. . . . Hindustan Steel, Ltd., is to set up a steel plant at Rourela, in Orissa, at a cost of several million pounds. A site covering over 62 sq. miles has been selected near Rourela and the actual location is soon to be selected. Tenders are to be invited shortly for the construction of the plant. The company is at present planning the construction of staff quarters. Power will either be obtained from Hirakud which is 90 miles away or from the plant's own thermal station, building of which is still under consideration.

Jordan.—The economic development of Jordan continues to increase and with more US funds coming along (about $8m. in all) much building work is foreseen at any rate over the next five years. The short-term plan for the Port of Aqaba is complete and the drawings of the plan are now in hand. Improvements for the airfield at Jerusalem are also going ahead. . . . Work has commenced on the Baqura irrigation scheme in the north of the Jordan Valley. This is being sponsored by the Development Board Fund. . . . Tenders are to be called for the building of a terminal building at the RAF station in Amman. . . . A British firm of consultants are to be asked to carry out a comprehensive survey of the railway on behalf of the Development Board. Meanwhile progress is being made on the railway workshops at Ma'an.

* From the Board of Trade Special Register Information Service.

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CANADIAN HARDWARE EXHIBITION

*The Canadian Retail Hardwares Association intend to hold their 50th annual exhibition in the Automotive Building, Canadian National Exhibition grounds, in Toronto, from February 7-10 next year. UK hardware manufacturers requiring more details should write to the exhibition offices of the organisers, 290, Merton-street, Toronto, 7, Ontario, Canada.

The Exhibitions and Fairs Branch of the Board of Trade, Lacon House, Theobalds-road, London, have brochures available to lend to interested inquirers, which show the size and scope of the exhibition. Telephone inquiries to Chancery 4411, Ext. 436, quoting ref. CRE(E&F)463/54.

MOBILE CRANE FOR SOUTH AFRICA

*The Stores Department, South African Railways, are calling for tenders for the supply of one self-propelled luffing jib slewing mobile crane to be driven either by a diesel-electric unit or by a petrol-electric unit; or, alternatively, one swan-neck jib only.

The closing date for the receipt of tenders is October 14, 1954, and tenders must be enclosed in a sealed envelope which must have inscribed on the outside "Tender No. F7962, Mobile Crane," and addressed to the Chairman of the Tender Board, PO Box 7784, Johannesburg.

Further particulars may be obtained from Export Services Branch, Board of Trade, Lacon House, Theobalds-road, London, WC1. Telephone inquiries to Chancery 4411, Ext. 771 or 738, quoting ref. ESB/21057/54.

The SCOTTISH BUILDER

SCOTTISH LONG LEASES

Conversion into Feus

THOUSANDS of Scottish families holding their homes under long leases will have the option of converting their leases into feus under the Long Leases (Scotland) Act, 1954, which came into operation on September 1. But they must exercise their option within five years after the commencement of the Act.

Most of the families affected live outside the cities. The Report of the Scottish Leases Committee, published in 1952, showed that there were over 13,000 existing leases granted for 31 years or more recorded in the Register of Sasines. Of these 4,153 were in Lanarkshire, 1,988 in Ayrshire, 793 in Dumfriesshire and only 102 in Glasgow. These 13,000 unexpired leases included nearly 9,000 with more than 100 still to run.

The new Act lays down that a lessee who is occupying his home under a long lease originally granted before August 10, 1914, for a period of not less than 50 years, will be entitled to require the landlord to grant him a feu in place of the lease. In 1914, obstacles to the granting of feus were finally removed by statute.)

A lessee who acquired his interest in the lease, otherwise than by inheritance on or after May 10, 1951, will not be entitled to a feu right under the Act.

POWER TO REFUSE FEU

Government departments, local authorities and New Town development corporations will have the right to refuse to grant a feu if the appropriate Minister certifies that it would not be in the public interest to make such a grant.

A landlord who acquired his interest in a lease between January 1, 1939, and May 9, 1951, for the purpose of residing in or developing the property, can apply to the Sheriff to decide whether the lessee should be given a feu.

The financial terms on which a lessee will be able to obtain a feu right will vary with the period of the lease which is unexpired at the date of conversion. If the unexpired period does not exceed 100 years he will pay (a) an amount equal to the value of the property with vacant possession at the commencement of the Act, deferred at five per cent. compound interest for the unexpired period of the lease or for 30 years, whichever is the longer, and (b) a feu duty equal to the rent payable under the lease. The amount at (a) may be paid in a lump sum or by way of an addition to the feu duty, or by a combination of these methods, as the parties may agree. If the parties cannot agree, one-half will be payable in a lump sum and the other half by an additional feu duty.

Where the unexpired period of the lease exceeds 100 years, the lessee will get his feu right in return for a feu duty equal to the rent payable under the lease.

The expenses of the feu right and of any valuation of the property will be payable by the lessee.

If an occupying lessee would be entitled to demand a feu under the Act and his lease is due to expire within the period of five years ending on August 31, 1959, the lease will be statutorily continued until May 15, 1960, unless a feu right is granted at an earlier date. The lessee can, however, give notice to the landlord that he does not wish his lease to be continued.

Building Regulations

NEW REGULATIONS and General Conditions of Contract for Building Works in Scotland, which became effective on September 1, have been issued by the Scottish National Building Trades' Federation, 13, Woodside-crescent, Glasgow, C3.

These regulations and general conditions of contract have been negotiated by the Royal Incorporation of Architects in Scotland and the Scottish National Building Trades' Federation, with the approval of the associations of local authorities in Scotland, namely, the Scottish Counties of Cities Association, the Convention of Royal Burghs of Scotland and the Association of County Councils in Scotland, and have been adopted in substitution for the Regulations and General Conditions of Contract for Building Works in Scotland dated December 20, 1915 (commonly known as the Scottish National Building Code).

Copies are being widely distributed to the local authorities, the professions, government departments and others requesting them, in respect of building contracts entered into by them subsequent to September 1, 1954, to incorporated the new regulations and conditions in substitution of the previous conditions. Further copies are available at 2s. 6d. each.

Housing Returns

THE NUMBER of new houses completed in Scotland in July this year was 2,801, bringing the total of completions for 1954 up to 22,718. By the same date last year the number of completions was 21,833; in 1952 the number was 16,032. Altogether over 239,000 new homes (207,038 permanent and 32,176 temporary) have now been built in Scotland under the postwar housing programme. These figures are given in the Monthly Housing Return issued by the Department of Health for Scotland and the Ministry of Housing and Local Government.

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SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from May 24, 1954. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen, 3s. 9d.; Labourers, 3s. 3½d.

For apprentices, the rates are:

Year.	Percentage of Craftsman's rate.	For week of 44 hours. s.	d.
1st	25	41	3
2nd	33⅓	55	0
3rd	50	82	6
4th	66⅔	110	0
5th	75	123	9

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	3½
Operatives on labouring operations (at end of probationary period)	3	0

School Programme Approved

A SCHOOL building programme to cost £2,085,000 was approved at a recent meeting of Lanarkshire County Council. The programme provides for the erection of 25 standard primary schools.

Fifteen of them will accommodate 340 pupils and 10 double that number. Three of the larger type of building, however, are to be started on a curtailed scale, and initially will only hold 340 pupils.

Five schools will be erected in both Airdrie and Hamilton and two each in Blantyre, Coatbridge, Larkhall, Rutherglen, and Wishaw. The sites of the others are at Cambuslang, Carluke, Lanark, Newarthill, and Tannochside.

Rothesay Castle Restoration

ROTHESAY CASTLE, one of Scotland's oldest fortresses, is now in the process of being repaired and restored by the Ministry of Works. The work, which, so far as the stonework is concerned, commenced about two months ago, is expected to occupy five to 10 years.

The courtyard of the original building, first mentioned in history in 1228, is 135 feet in diameter, with eight-foot-thick circular walls 30 feet high, flanked by four projecting circular towers.

The work at present being done is largely confined to the chapel within the courtyard, believed to date from the fourteenth century. The south wall of this two-storey building was in danger of collapsing and had in a previous generation been buttressed. It has been completely taken down and is now being rebuilt, using the original stones.

The opposite wall and gable, which are in better condition, will then be repaired and work will continue on the main structure.

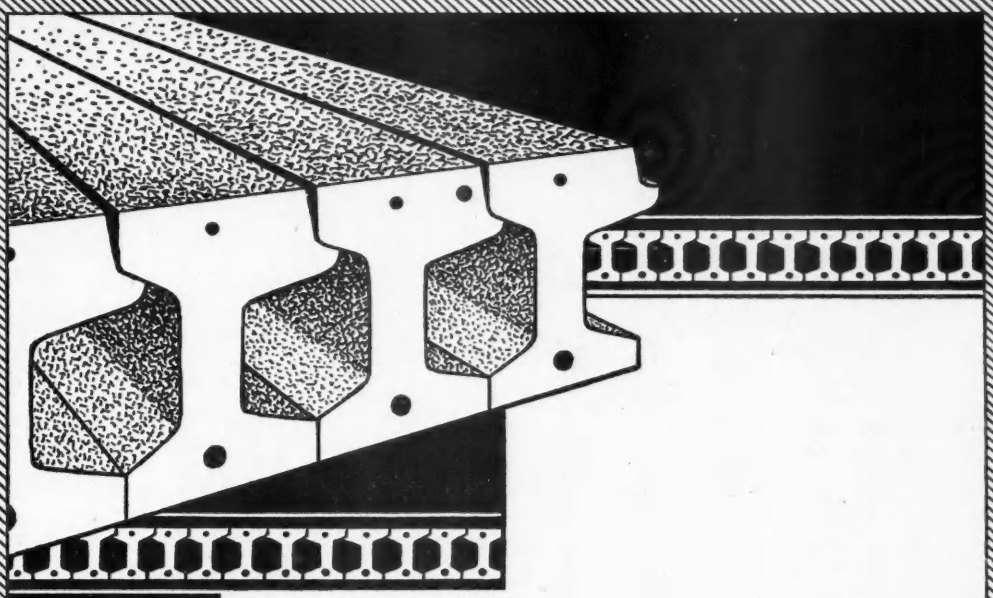
Factories for U.S. Firms

EIGHTY per cent. of all factories set up by American firms in Britain since the war have been built in Scotland.

Lord Bilsland, chairman of Scottish Industrial Estates, Ltd., said this recently, when he opened a new factory in the Spango valley, on the outskirts of Greenock.

The factory—of more than 120,000 square feet—is for International Business Machines, of America Plans have been made for building a similar-sized factory next to the present site.

Lord Bilsland said this was the latest link in a chain of factories crossing five Continents which supplied the products of this corporation to 79 countries.



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NEW BUILDINGS

Aberdeen.—Plans are in course of preparation for new infants' sch., also janitor's house, to be erected at Corthan-cres., Northfield Cummings-park, Kincorth. The architects are J. A. O. Allan, Ross & Allan (F&A), 10, Bon Accord-sq., Gt. Western-rd., Aberdeen.

Airdrie.—Plans prepared and approved for scheme of 68 three-apartment and 22 four-apartment houses to be erected on the Imperial-dr. site. The Corpn. A is Harry Shaw (F), Master of Works Offices, Royal Bank-bldgs., Graham-sq., Airdrie.

Balingray.—Fifeshire CC is having plans prepared for alterations and additions to the Junior Sec. Sch. The architect is R. S. Lawrie (A), County-bldgs., St. Catherine-st., Cupar, Fife. The quantity surveyors are Williamson & Lowe (FF.SI), 2, Chalmers-st., Dunfermline.

Dunbartonshire.—CC has a scheme in hand for public primary sch. to be erected at the Hillhead housing site. Plans are to be prepared by Robert J. Walker & Smith (F&F).

Dundee.—Plans prepared and approved for new scheme of 176 houses to be erected at a selected Angus site. The architect is J. Austen Bent (A), 15, Palmerston-pl., Westend, Edinburgh.

East Kilbride.—Plans prepared and approved and tender accepted for section 2, consisting of 132 houses to be erected at the Calderwood housing site. The architects are Ross, Harvie & Scott (F&F), 2, Clifton-st., Charing Cross, Glasgow.

Falkirk.—Plans prepared and approved for the erection at the Glenfruin housing site at Camelon, Stirlingshire, of 66 three- and four-apartment houses in flats, at an est. cost of £87,000. The Council A is A. C. M. Connell (A), Master of Works Offices, West Bridge, Falkirk.

Fifeshire.—CC is to have plans prepared for new hostel to be erected at the Macrone Nursing Home. The Council A is Robert Meldrum (AMTPI, AMInstCE), Master of Works Offices, Kirkcaldy. The quantity surveyors are C. R. Douglas & Co. (FF.SI), 15, East Port, Dunfermline.

Glasgow.—Plans prepared and approved for alterations and additions for Rodger & Smith, Ltd., Partick, to be carried out at Elliott-st. The architect is Magnus Duncan (F), 243, Eglinton-st., Glasgow.

Glasgow.—Plans prepared for scheme of multi-storey flats to be erected as the 5th development of the Toryglen housing scheme. The architect is J. Austen Bent (A), 15, Palmerston-pl., Westend, Edinburgh.

Glasgow.—Plans prepared and approved for alterations and additions at 692-594, Govan-rd., Govan, for the KLMP, Ltd., West Regent-st. The architects are Will B. Wright & Kirkwood (F&A), 9, Woodside-pl., Woodlands-rd., Glasgow.

Glasgow.—Plans prepared and approved for new building at Argyll-st., Anderston. The architect is John Cameron, 41, Hope-st., Blythswood, Glasgow.

Glasgow.—Plans prepared and approved for alterations and additions to the Lightning Launderettes, Ltd., Thornliebank Industrial Estates, to be carried out at Paisley-rd. West, Shieldhall. The architects are William Baillie (F&A), Accountancy Hall-bldgs., West Regent-st., Glasgow.

Greenock.—Corpn. has given consideration to the layout plans for the proposed erection at the Auchmead and Braehead sites of between 60 and 70 houses of the space-saving four-apartment cottage type. Plans have been prepared by Robert L. Rankine (F), Master of Works Offices, Municipal-bldgs., Hamilton-st., Greenock.

Inverness.—Plans in hand for scheme of 75 houses to be erected by Inverness Assoc. Builders, Ltd., at an est. cost of £200,000, at a site on the Doris-rd. The architect is D. MacKillop (F), The Queensgate, Inverness.

Kirkcaldy.—Corpn. has had plans prepared and approved for two schemes of new buildings for the Cleansing Department to be erected on a site at Dolburn, and of 22 cottages to be erected at the west site of Alford-st. Corpn. A is Robert Meldrum (AMInstCE, AMTPI), Master of Works Offices, Kirkcaldy.

Lanarkshire.—Plans prepared and approved for erection of new halls for Baillieston Old Church of Scotland at Melville-rd., Baillieston. The architects and quantity surveyors are James Davidson & Son (FRIBA, ARISA), 9, Academy-st., Coatbridge.

Lanarkshire.—Plans prepared and approved for 30 houses for Corpn. to be erected at The Kildare and Ryber Lodge sites. The architect is John H. Whyte (F), 38, High-st., Lanark.

Lanarkshire.—Plans prepared and approved for new offices and laboratory buildings to be erected at the Clyde Iron Works, Tollcross. The architects are the staff of Colville's, Ltd., 192, West George-st., Glasgow.

Lanarkshire.—Plans prepared and approved for extensions, etc., for the NCB at the pithead baths, Cardowan Colly., Stepps. The architect is James Allan (F), 58, Palmerston-pl., Westend, Edinburgh.

Midlothian.—Plans prepared and approved for scheme of four blocks of houses and business premises and 62 cottages to be erected at the Shottstone housing site. The architect is Robert J. Naithsmith (F), 1, Summerside-pl., Leigh, Edinburgh.

Port Glasgow.—Renfrewshire CC to erect a school on selected site, for which plans are in the hands of James Taylor (F), 220, West Regent-st., Glasgow.

Renfrewshire.—Plans prepared by their own staff architects have been approved for new houses to be erected at a site at Bishopton by James Keenie & Co., Ltd., Floors Contracting Works, Houston-sq., Johnstone.

Rutherglen.—Plans prepared and approved for new Lanarkshire premises for the Rutherglen Co-op. Soc., Ltd., to be erected, at an est. cost of aproximately £8,000, from designs by their own architects.

Thornhill.—Dumfriesshire CC is to have plans prepared for alterations and additions at the Morton Academy at an est. cost of about £122,000. The Council A is George Batholomew (A), County-bldgs., Dumfries.

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

SEPTEMBER 8.

***†Abertillery UDC.**—86 traditional dwellings on Swffryd site "B," near Crumlin. H. J. Williams, Clerk of C. Dep. £2 2s. Tenders by September 27.

SEPTEMBER 14.

†Islington BC.—15 dwellings at Tollington Park (Sedgley House extension). Tenders by October 18.

SEPTEMBER 15.

***†Mitcham BC.**—Public conveniences at South Lodge-ave. BE&S. Tenders by October 4.

SEPTEMBER 17.

***†Bucks CC.**—Canteen, kitchen, dining-room and boiler house at Boys' Grammar Sch., Lascelles-rd., Slough. County A, Aylesbury. Dep. £2 2s. Tenders by October 4.

***†Croydon CBC.**—24 flats at South Norwood Hill. BE.

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SEPTEMBER 18.

***†Essex CC.**—Erection of Romford Harold Hill "Brookside" County Primary School; schoolkeeper's house at George Tomlinson County Primary School, Leytonstone; adaptations to Essex Institute of Agriculture, Writtle; and rebuilding of classrooms at Grays Open-air School. Separate contracts. County A, Chelmsford.

***†Hendon BC.**—(a) 14 lock-up garages and access road at rear of No. 11, Salcombe-gdns., Mill Hill, NW7; and (b) 16 lock-up garages on land between Harcourt-ave. and Fairmead-cres., Edgware. BE&S. Dep. £2 2s. each contract.

***†Willenhall UDC.**—16 flats at Clarkes-la. estate. E. E. Bannington (A), Architect, Town Hall. Dep. £3 3s.

SEPTEMBER 20.

†Birmingham City C.—Contract No. 470, 16 shops, 18 flats and office accommodation at Bell-la., Tile Cross. City A. Dep. £2 2s. Tenders by October 27.

Bridlington BC.—Erection of factory building on the industrial estate, Bridlington. Boro' E. Dep. £2 2s.

***†Bristol TC.**—Erection of health clinics at Hareclive-rd., Hartcliffe and Knole-la., Henbury. City A. Dep. £2 2s.

***†Wednesfield UDC.**—House and garage at Long Knowle-la./Bradburn-rd. junction. T. A. Peacock, MIMunE, 29, Bolton-rd. Dep. £2 2s.

SEPTEMBER 22.

***†Kingston-upon-Hull CC.**—Contract No. 2, superstructure of West Hull and Haltemprice joint main drainage pumping station. City E. Dep. £5. Tenders by October 27.

SEPTEMBER 25.

***†Epping UDC.**—28 flats at Beaconfield estate, Epping. B. Hiscott, Clerk of C, 91, High-st., Epping, Essex. Dep. £2 2s. Tenders by October 28.

West Riding of Yorkshire CC.—Construction of a footbridge over railway at Kiveton Bridge Stn. E&S. Dep. £1.

SEPTEMBER 27.

***Ealing BC.**—Slipper baths and laundry, South Ealing. BE. Dep. £2.

SEPTEMBER 28.

***Brighton CBC.**—48 flats at Hollingbury estate, site "B," Chelwood-cl. area. BE&S. Dep. £2 2s.

SEPTEMBER 30.

***†Lincoln (Parts of Kesteven) CC.**—Extension to the King's Sch., Grantham. County A, County Offices, Sleaford. Tenders by October 25.

***Luton BC.**—14 flats at Bailey-st./Park-st. junction. BE. Dep. £2 2s.

OCTOBER 1.

***†Harrow BC.**—Inclusion in selected list of building contractors. TC, Harrow Weald Lodge, Harrow.

OCTOBER 4.

***Middleton BC.**—Seven shops and five maisonettes on Hollin estate. Boro' A. Dep. £2 2s.

***Morecambe and Heysham BC.**—Six houses and eight flats at Branksome-dr. estate. BS. Dep. £1.

OCTOBER 6.

***Huntingdon RDC.**—Four bungalows at Alconbury Weston. K. A. Milner, LRIBA, 4, Market-hill, Huntingdon. Dep. £2 2s.

OCTOBER 7.

***Norman Cross RDC.**—Contract No. 1, 54 houses; contract No. 2, site preparation and development work. Ruddle & Wilkinson, FLA.RIBA, Long Causeway-chbrs., Peterborough. Dep. £2 2s.

OCTOBER 9.

***Bromsgrove UDC.**—30 flats and 64 houses at Broad-st. housing estate, section No. 1. E&S. Dep. £3 3s.

***Saffron Walden RDC.**—Six houses at Widdington. C, Council Offices, Debden-rd., Saffron Walden.

OCTOBER 11.

***Swale RDC.**—20 houses, with site works, etc., at Boughton. E&S, 48, Bell-st., Sittingbourne. Dep. £3 3s.

OCTOBER 14.

***Grimsby CBC.**—New police headquarters in Victoria-st. BE&A. Dep. £5.

OCTOBER 29.

***Oswaldtwistle UDC.**—24 houses and eight bungalows at Thwaites-rd., White Ash estate; supply of fittings of above in various trades. E&S, Town Hall. Dep. £5 5s. complete, or £1 1s. each trade.

NOVEMBER 11.

***Bucks CC.**—Erection of police headquarters at Slough. County A, Aylesbury. Dep. £2 2s.

NO DATE.

Penrith (Cumb) UDC.—36 houses and site works adjoining Folly-la. F. Birbeck, E&S. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

SEPTEMBER 18.

***Durham CC.**—Various items for workshop block at Bishop Auckland Technical College. County A.

SEPTEMBER 20.

***Dunstable BC.**—External redecoration and repair to 40 chalets on Mead-way estate. Hsg. Estates Mgr. Dep. £1 1s.

SEPTEMBER 21.

***West Riding of Yorkshire CC.**—Engineering services at new multiple clinic, Corporation-st., Morley. County A, Bishopgarth, Westfield-rd., Wakefield.

SEPTEMBER 25.

Manchester City C.—(a) heating, and (b) hot water supply installations at home for old people, Chapman-st., Gorton. City A. Dep. £1 1s.

***Waltham Holy Cross UDC.**—Street lighting at Wake Arms roundabout. Council's S.

OCTOBER 4.

***LCC.**—Cleaning, repainting, etc., of five Northern Outfall sewer bridges. Chief E. Dep. £1.

OCTOBER 13.

***Yeovil BC.**—Rc floor and concrete block wall at new garage, Town Yard, Vicarage-st. BS.

OCTOBER 14.

***Grimsby CBC.**—Heating and hot water; also electrical installations, at new police headquarters in Victoria-st. BE&A. Dep. £5 each work.

ROADS, SEWERAGE AND WATER WORKS

SEPTEMBER 20.

Bedford BC.—About 5,300 lin. yds. sewers and 18,000 sq. yds. carriageway at areas L, J, and K, Putnoe housing estate. BE&S. Dep. £2 2s.

SEPTEMBER 24.

†Tenterden RDC.—About 2½ miles sewer, pumping station, sewage disposal works, etc. Howard Humphreys & Sons, 191, Victoria-st., SW1. Dep. £3 3s. Tenders by October 4.

SEPTEMBER 27.

Stratford-upon-Avon BC.—Advance preparation works at Redlands housing estate, Alcester-rd. BE&S. Dep. £2 2s.

SEPTEMBER 28.

Lexden and Winstree RDC.—About 1,500 yds. spun-iron pipes at Abberton. Elliott & Brown, engineers, Stanley House, Pelham-rd., Nottingham. Dep. £3 3s.

SEPTEMBER 30.

Belfast City C.—Foundations for extensions of Belfast Municipal Electric Power Station West, including placing of about 25,000 cu. yds. concrete. Merz & McLellan, engineers, Carliol House, Newcastle-upon-Tyne, 1. Dep. £5 5s.

Lymington BC.—About 1,070 lin. yds. sewers, etc., at Barton-on-Sea. BE. Dep. £2 2s.

OCTOBER 1.

Ludlow RDC.—Wall-Under-Heywood, Rushbury and Roman Bank water supply. A. H. S. Waters, MICE, engr., 25, Temple-row, Birmingham, 2. Dep. £3 3s.

Swansea CBC.—Rc bridge with piled foundations on section 1B of East side Approach-rd., B.4290. BE&S. Dep. £5.

OCTOBER 5.

South Cambs RDC.—Contract No. 4, 9 miles water mains, with road reinstatement and other works, comprising Barrington, Foxton and Shepreth water supply. Lemon & Blizard, engineers, 59, Tufton-st., Westminster, SW1. Dep. £5 5s.

GENERAL BUILDING WORK

(LONDON)

Cavendish Square.—UNDERGROUND CAR PARKS.—Trial borings have been made at Cavendish-sq, W1, where an underground car park is to be constructed. This car park is one of three to be constructed, for which the preparation of plans and estimates has now been approved by M of T. The three schemes, at Grosvenor-sq., Cavendish-sq. and Finsbury-sq., will provide parking facilities for 1,230 cars at an approximate estimated cost of £1,040,000. The engineers and consulting architects for the schemes are as follows: Grosvenor-sq., Sir Owen Williams & Ptnrs., engineers, 44, Park-rd., NW1, and Ellis Clarke & Gallannaugh, architects, 58, Grosvenor-st., W1; Cavendish-sq., Bylander & Waddell, 26, Old Burlington-st., W1, and Wornum & Playne, 19, Queen Anne's-gate, SW1; Finsbury-sq., Sir William Halcrow & Ptnrs., Alliance House, SW1, and Anderson, Forster & Wilcox, 7, Stone-bldgs., Lincoln's Inn, WC2.

Cranham. — HOUSING DEVELOPMENT. — Proposals have been made by H. Webb (Builders), Ltd., contractors of the LCC flats, Havering-st, E1, for the erection of 195 dwelling-houses on a site at Moor-la., Cranham.

Cranham.—BUNGALOWS.—The use of land at Fairholme-gdns., Cranham, by S. Varney & Co., Ltd., 109, Shakespeare-rd., SE24, for the erection of eight bungalows has been approved by Hornchurch TP Com.

"THE BUILDER" PRICES

BRASS AND COPPER TUBES

The Brass and Copper Tube Association announce the following changes in the basis price of metals which became effective on September 1:

	Increased by per lb.	*Basis price per lb.*
Copper tubes	¼d.	28¼d.
Brass tubes	¼d.	23¼d.
Brazed brass tubes	¼d.	35¼d.
Drawn brass strip sections	¼d.	34¼d.
Copper-nickel tubes 70/30	¼d.	36¼d.

The list prices of ferrules are increased as follows.

	Increased by per lb.
Brass and aluminium brass ferrules ..	¼d.
Copper-nickel ferrules 70/30	¼d.

The basis price for brass tubes applies to both round and shaped solid drawn tubes.

Dagenham.—PRIVATE HOUSING.—MH and LG have given their approval to proposals by Albert Toleman, Toleman's Garage, New-rd., for the erection of 43 private houses in New-rd.

Friern Barnet.—SHOPS AND MAISONETTES.—An outline application submitted by A. E. Parker FALPA, FFS(Eng.), 20, The Close, N14, for the erection of shops with maisonettes over on land at Woodhouse-rd. between Lyndhurst-ave. and Woodleigh-ave., N12, has been recommended for Area Planning Officer's approval by Hsg. Com., subject to certain conditions.

Holborn.—NEW SERJEANT'S INN.—Foundations are now being laid for the rebuilding of the ruined Serjeant's Inn, to include new private road through Mitre-ct., demolition of the Clachan tavern, and the erection of a new tavern just south of the present site. The new Serjeant's Inn will be a concrete-frame building, for which plans are being prepared by Devereaux & Davies, 3, Gower-st., W1. The architects for the new Clachan tavern are Lutyens & Greenwood, FF.RIBA, 13, Mansfield-st., W1.

Hornchurch.—POLICE HOUSES.—UDC have been recommended to approve plans submitted by Essex CC for the erection of four police houses at Cheviot-rd. and four at Spencer-rd., Rainham.

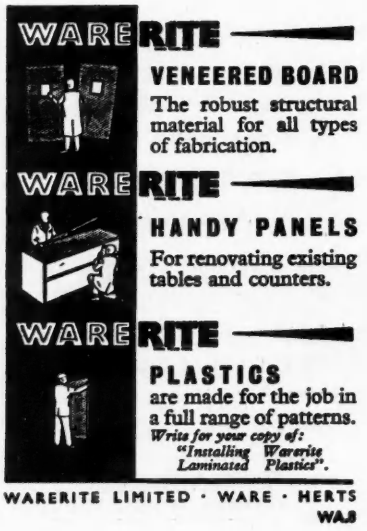
Hornchurch.—BUNGALOWS.—TP approval has been given by UDC to the proposed erection by Leftley Bros., Ltd., The Drive, Upney-la., Barking, of 16 bungalows at the sites of Nos. 52-82, Suttons-la.

Rainham.—DWELLING-HOUSES.—TP approval has been given by Hornchurch UDC to an amended site plan and street layout submitted by G. West & Co., Ltd., providing for the erection of 26 dwelling-houses on land off Upminster-rd., Rainham.

Rainham.—OFFICES.—The erection of an office block at Ferry-la., Rainham, proposed by the Denver Chemical & Metal Refining Co., Ltd., 12, Carlisle-rd., NW9, has been approved by Hornchurch TP Com.

Rainham.—DWELLING-HOUSES.—TP approval has been given by Hornchurch UDC to proposals by L. W. Tidder, Ltd., bldg. contractors, 4, Broadway, Gidea Park, providing for the erection of five dwelling-houses on land at Frederick-rd.

Woolwich.—SITE NEGOTIATIONS.—The Ford Motor Co., Ltd., of Dagenham, are carrying out negotiations with the LCC for part of the Woolwich Arsenal site, which is to become redundant when the Arsenal has been reorganised.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(PROVINCIAL)

Accrington.—PC Council of Christ Church propose alterations and reconstruction of church, £15,000 est., including demolition of tower and steeple. Architects, North & Padmore, Bangor, North Wales. Consulting engineers, Sir Herbert Humphreys & McDonald, Birmingham.

Ashton-under-Lyne.—BC approved erection of 28 flats at Newmarket-rd.—Approved plans for new offices at Dale-st., Portland Mill, for MacDonald & Son, Ltd.

Atcham.—RDC to erect 18 dwellings on Grafton Airfield.

Bedlington.—Plans being prepared by UDC for 1,000 new houses on a site of 90 acres.

Bingley.—UDC approved erection of block of four flats and four houses at Harden, block of four flats at Parkside-ter., Cullingworth, and one block of four flats at Crack-la., Wilsden.

Birkenhead.—BC approved new clubhouse at St. Peters-rd., Rock Ferry, for Cammell Laird's Sports Club.

Birley (Derbys).—Birley & District Community Assoc. propose extensions to community centre.

Blackpool.—Propose new St. Wilfrid's Church sch. at Langdale-rd., Mereside. Architects, Grenhell, Baines & Hargreaves, 12, Guildhall-st., Preston.

Bootle.—J. Arthur Rank Organisation propose rebuilding "Broadway" Cinema, Linacre-la.

Carnforth (Lancs).—UDC approved plans for erection of church hall at Kellett-rd. for Our Lady of Lourdes Church Council.

Chapel-en-le-Frith.—RDC propose erection of 100 houses at Hope.

Corby.—UDC approved layout for 15 shops, medical centre, church, and aged persons' hostel at Lodge Park estate.—Licensing Justices approved erection of licensed premises at junction Market-sq./Elizabeth-st., for P. Phipps & Co., Ltd., Northampton.

Cumberland.—CC to let contract for converting byre into small fire stn. at Bootle near Millom. Plans by J. H. Haughan, Cty. A, 15, Portland-sq., Carlisle.

Douglas (IoM).—BC approved plans for grain elevator at North Quay for Clinchs Brewery Co., Ltd.

Dudley.—J. Gillott & Sons, Ltd., propose erection of factory at Birmingham-rd.

Durham.—CC to build 24 police houses at Chester-le-Street, 12 at Consett and five at Seaham. Plans by Cty. A, G. R. Clayton, Court-la., Durham.

Durham.—Methodist authorities plan new churches costing between £10,000 and £12,000 in each case, at Wardley and Hebburn-on-Tyne.

Gosforth.—UDC to consider erection of flats on site originally allocated for shopping centre at Grange Park estate. C. Wyld, UDC S.

Heywood.—TC propose erection of 98 flats and 34 houses on Hardfield site.

Huddersfield.—TC propose erection of crematorium at Fixby.

Hyde.—BC approved layout for 129 houses at Lilly-st. and Grange-rd. and 15 houses at Cheetham Fold estate.

Jarrow.—New Baptist Church and Sunday-sch. to be built at Simonside, cost £20,000. Rev. D. L. Evans, Jarrow, is Minister.

Leeds.—Alexandre, Ltd., propose conversion of former Belgrave Congregational Church into three-storey warehouse.

Liverpool.—YMCA propose extensions to existing premises at Mount Pleasant by addition of six-storey hostel and gymnasium block. Architects, Medcalf & Medcalf, 3, Stanley-st., Liverpool.—Barker & Dobson, Ltd., propose erection of office building at Whitefield-rd., Liverpool. Architects, Sir A. E. Shennan & Partners, North John House, 17, North John-st., Liverpool.—Singer Sewing Machine Co., Ltd., propose erection of shop and office building at 21/25, Bold-st. Architects, Sir A. E. Shennan, 17, North John-st., Liverpool.

Liverpool.—44 new houses to be built at Field-la., Litherland, at cost of over £60,000.

Maidstone.—M of H approved erection of 20 houses and 12 flats at Linton, near Maidstone, for £42,424.

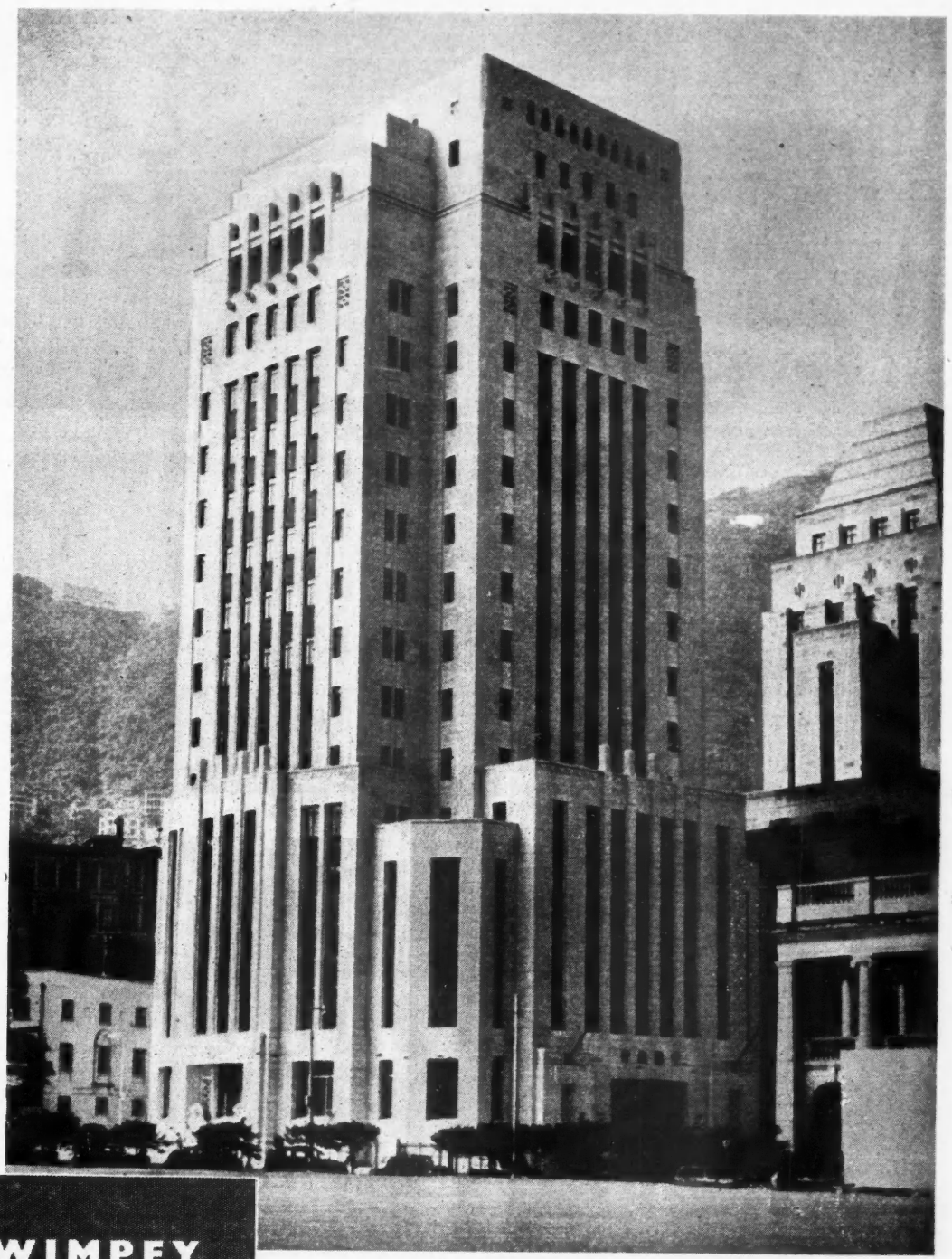
Manchester.—Detailed plans prepared for Corpn's £50,000 six-storey office block with ground-floor shops at corner of Princess-st. and Mosley-st. on site of city's blitzed Register and Rates Office. City A's Department, Town Hall.

Manchester.—TC propose erection of 18 houses at corner Whitehead-rd./Hackness-rd, Chorlton-cum-Hardy.—Follows & Bates, Ltd., Froxmer-st., Gorton, propose single-storey addition to factory for storage accommodation. Architects, Naylor, Sale & Widdows, St. Mary's-chbrs., Derby.—Capital Garage & Engineering Co., Ltd., 14, Princess-rd., Moss Side, propose erection of car showroom, lubrication bay and new oil store at corner of Barton-st. and Moss-la. East, Moss Side, Manchester.—The Baguley Working Men's Club propose erection of club premises at Scout-rd., Newall Green, Wythenshawe. Architects, Price, Nunn & Quysner, 180, Oxford-rd., Manchester 13.—Hampson & Kemp, Ltd., Crescent-rd., Chorlton-cum-Hardy, propose erection of six houses at Hawthorn-rd., Chorlton-cum-Hardy.

Meriden.—RDC approved layout for 134 houses, 10 aged persons' bungalows and 40 garages between Birmingham/Coventry-rd., Fillingley-rd. and Leys-la.

Middlesbrough.—Work started on preparing site for proposed large new stores for Binns, Ltd., drapers, of Sunderland.

Middlesbrough.—J. Newhouse & Co. propose to build another storey to their departmental stores, and also to demolish property in Newport-rd., and erect three-storey building.



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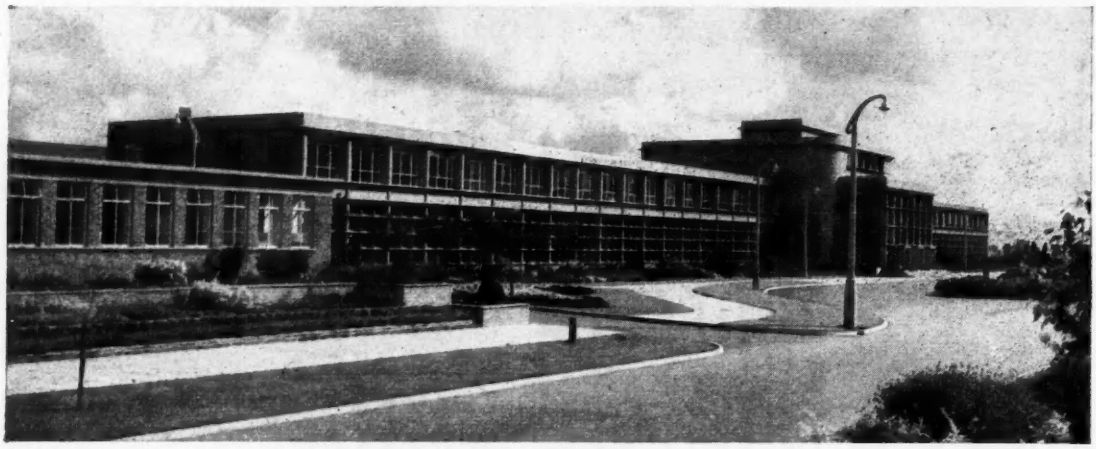
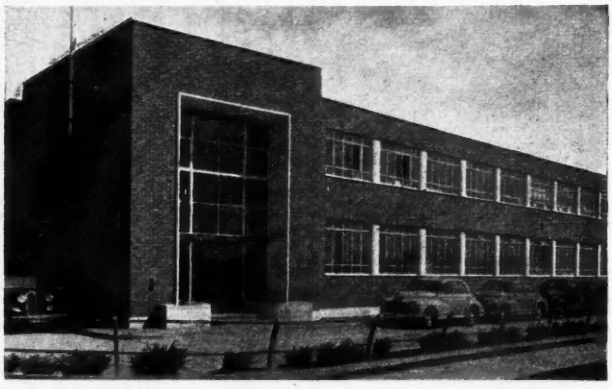
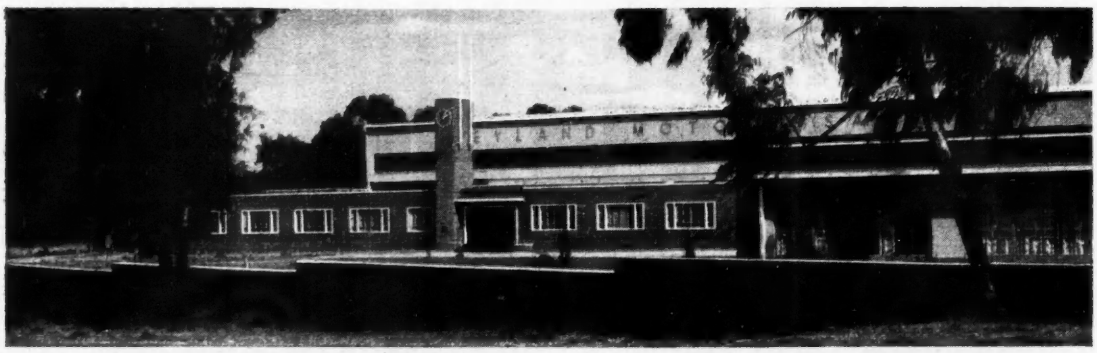


Administration offices and factory for Patons and Baldwins Limited at Darlington

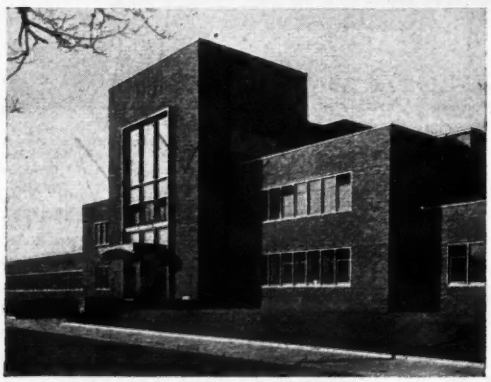
Post-war Factories



Factory for Rotaprint Limited, London



Assembly Works, Depot, Offices and Canteen for Leyland Motors (S.A.) Limited, at Elandsfontein, South Africa



Factory at Boreham Wood, Hertfordshire, for Adhesive Tapes Limited

LAING

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Middlesbrough.—Appeal being made for £14,000 for proposed additions to Acklam Parish Church. Vicar, Rev. R. M. Kelly.

Newcastle-on-Tyne.—City C to spend £14,141 on erection of another nine houses at Kenton North. G. Kenyon, 18, Cloth-market, Newcastle, City A.

Newcastle-on-Tyne.—Revised site plans approved for public-house at Edgefield-ave., for Vaux and Assoc. Breweries, Ltd. The architect is M. A. Mackenzie, 1, Eldon-sq., Newcastle.—Plans being prepared by T. F. Burns & Partners, consulting engineers, 3, Ellison-pl., Newcastle, for extending engine works, etc., at Neptune Shipyard, for Swan Hunter & Wigham Richardson, Ltd.

Newcastle-on-Tyne.—London General Sales, Camden-st., to build additional floor to premises. Architect, C. Solomon, St. Mary's-pl.—Vickers Armstrong's, Ltd., Elswick, have had staff plans approved for additions and alterations to their works.—Hsg. Com. approved proposal to construct reinforced concrete rafts for 420 houses at Longbenton. City A, G. Kenyon, 18, Cloth-market.—Armstrong & Banks, Ltd., City-rd., to build offices at their premises. Architect, M. Gatoff, 25, Trafalgar-st.—Additional floors to be built at 67, Westgate-rd., for G. Woolf & Son. Architects, Stephenson & Gillis, Saville-chbrs., North-st.

North Riding.—CC recommended by Health Com. to spend £16,135 on erection of infant welfare centre, school clinic, health office and nurses' flat at Park-la., Guisborough. Cty. A, H. J. Knowles, County Hall, Northallerton.

Northwich.—British Crepe, Ltd., Middlewich, propose erection of factory at Cumberland-st.

Oldham.—TC propose compulsory purchase of land at Fitton Hill for erection of 13/1,400 houses.

Ossett.—TC propose erection of 22 houses at Westfield.

Penistone.—David Brown Corp. Hsg. Assoc., Ltd., propose erection of 24 houses on Castle Green site.

Redcar.—Site in Kirkleatham-la. to be purchased by North Riding CC for erection of cty. mod. sch. Cty. Sch. A, D. W. Dickenson, County Hall, Northallerton.

Rhyl.—DC approved scheme, cost about £34,980, for development of East Parade.

Rochdale.—Courtaulds, Ltd., propose erection of research building covering 85,000 sq. ft. on vacant site opposite Arrow Mill, Queensway.

Rugeley.—UDC propose erection of pavilion on Ravenhill Recreation Ground, £10,000 est.

Runcorn.—UDC approved plans for erection of canteen at Rocksavage Works for ICI, Ltd., General Chemicals Division; new licensed premises at junction Halton-rd./Astley-rd., for Greenall Whitley & Co., Ltd., new RC Church at Ivy-st., for Rev. C. Turner, St. Edward's Presbytery, Irwell-la., Runcorn; conversion of premises known as "Beaconsfield," to licensed premises, Western-rd., for Greenall Whitley & Co., Ltd., Wilderspool Brewery, Warrington.

Salford.—TC approved plans, extensions to operating theatre at Hope Hospital, for Manchester Reg. Hospital Brd.; single-storey building at 115/121, Ordsall-la., for Permaglaze, Ltd.; two-storey office xtension at 333/5, Chapel-st., for J. Walton (Electrical), Ltd.

Scarborough.—BC approved plans, development of Swifts Boarding House, Blenheim-ter., as staff flats, canteen, sales dept., private hotel and cold store; also conversion of adjoining site at Marlborough-st., to form garage and fruit warehouse for Quartons Wholesale, Ltd.

Seaton Valley.—UDC asked for extra allocation of houses. Contracts will be negotiated with firms already building for Council. S, T. W. Burgess.

Sedgefield (Durham).—RDC to build 10 shops with flats at Trimdon and six shops with flats at West Cornforth. S, J. Tarran.

Slough.—Building of Aspro's new 30,000 sq. ft. factory to start next spring and be completed in about 18 months. Consultant on scheme, Dr. Francis Wilson. Director, J. S. Walmsley.

Southport.—TC received Min. approval for crematorium at High Brows, Covert, Pool Hey, Scarisbrick, £40,000 est.

Stalybridge.—BC to prepare fresh plans for erection of branch library at Millbrook; to obtain tenders from James Ridyard & Sons, Ltd., Railway Sawmills, Ashton, and N. Murray, Booth-st., for 24 houses at Copley estate.—Manchester TC propose erection of 250 houses for overspill in Carbrook area.

Stockton-on-Tees.—TC to build, by contract, 23 houses and 42 flats at Newtown. Plans by Boro' A.

Stockton-on-Tees.—TC to acquire compulsorily 2,350 sq. yd. of land in Londonderry-rd. for housing purposes.—TC received loan sanction for £142,548 for erection of 110 "No Fines" houses by Wimpey & Co., Ltd., Orchard House, Newcastle-on-Tyne.—TC approved plans by Boro' A, T. C. Hartley, 28, The Square, for classroom hutments at Norton High-st. sch. and Richard Hind boys' sch.—TC to erect 12 single persons' houses in Grangefield-rd. to plans by Boro' A.—F. W. Turnbull, White House, Carlton, prepared plans for dairy in Bishopton-rd. West, for J. T. Rigg.—N. Stonehouse, builder, Northcote-st., Stockton, to erect six houses in Harlsey-cres.—R. Cowan, architect, Finkle-st., prepared outline plans for proposed housing developments west of Green-la., Hartburn. Builder, R. B. Bainbridge, Prudential-bldgs., High-st., Stockton.—G. Hope, builder, 121, Bishopton-rd., Stockton, to erect eight houses in Bromley-rd. to plans by G. P. Stainsby, 57, High-st.—Selby & Son, 93, High-st., have submitted outline plans to TC for proposed store and receiving depot in East-st., for M. Robinson & Son.

Sunderland.—RDC received Min. approval for building of 38 houses at South Hylton, cost £52,021, including roads and sewers. Plans by S, C. Emmerson, Council Offices, The Esplanade.

Sunderland.—Corp. received Min. approval for building of 200 houses at Grimdon and High Southwick, as stage 1 of rehousing 402 families living in American-type prefabs.

Sunderland.—James Deuchar, Ltd., Eldon-sq., Newcastle-on-Tyne, to rebuild war-damaged "Empress Hotel" in Union-st., Sunderland.—Plans prepared for three-storey building including restaurant to seat 300 people. Architect, Edwin M. Lawson, Barras-bldgs., Barras Bridge, Newcastle-on-Tyne.

Upholland.—UDC approved erection of Methodist Church at Tower Hill.

Wallasey.—Corp. has drawn up plans for lido at Harrison-dr., on site of former bathing pool. Scheme provides for bathing pool, two cafés, sun-bathing facilities, and ice-cream parlour. Shelters, trading kiosks, and chalets will be erected.

Whitley Bay.—Property in Northumberland-sq. being demolished to make way for proposed extensions to bus stn. belonging to United Automobile Services, Ltd., Grange-rd., Darlington.

Wigan.—H. J. Heinz & Co., Ltd., propose erection of factory between Walthew House-la. and River Douglas, £2½m. est.

Wigan.—H. J. Heinz & Co., Ltd., propose new premises at Kittgreen, near Wigan. Architect is E. D. Jefferiss Mathews, OBE, FRIBA, 3, Ebury-st., SW1, in collaboration with Skidman, Owing & Merrill.

Workington.—Plans submitted to BC:—ATC quarters at Victoria-rd., for Cumberland and Westmorland T and AF Assoc., Cockel House, Penrith. Architect, Jonathan Saul, National Provincial Bank-chbrs., Workington.

Wrexham.—BC to prepare plans for houses at Kings Mills-rd., Gatefield.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

Barrow-in-Furness.—Extensions to Rock Lea Home, for BC: *Direct Labour, £11,173. Erection of eight flats at Himalaya-ave., for BC: *Direct Labour, £8,209.

Battersea.—Electrical installation to 192 flats at Anerley-st. housing scheme, for BC: *Alpha Manufacturing & Electrical Co., Ltd., 21, Cedars-rd., Clapham, London, £11,504

Blackpool.—Construction of hardstandings and fuel installations at Squires Gate Aerodrome, for Hawker Aircraft (Blackpool), Ltd.: *Sir Lindsay Parkinson & Co., Ltd., Shaftesbury-ave., WC2.

Bridgwater.—150 houses and bungalows at Sydenham estate. Architect, J. D. Blacklock, ARIBA. Quantities by Boro' A: *J. Standerwick & Sons, Ltd., Taunton-rd., Bridgwater, £197,031.

Bromsgrove.—Erection of four bungalows at Stoke Green, for RDC: *Hall Green Builders, Ltd.

Carlisle.—Extension to milk depot at Carrock-rd., for Nestlé & Co., Ltd.: *John Laing & Son, Ltd., Carlisle.

Durham.—Erection of six houses at Gilesgate Green, for City C. Cty E, W. J. Green, Town Hall: †R. J. Edwards & Co., Eden-ter., Durham-rd., Sunderland, £8,779.

Durham.—Erection of public-house at Auton Stile, Bearpark, for Westoe Breweries, Ltd., Dunelm-st., Sunderland: *T. B. Pearson, Ltd., Wharf-st., Stockton-on-Tees, £13,000.

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Eston.—Erection of 10 houses on Redcar-rd. East estate, for UDC. S, N. C. Harrison: *Direct Labour.

Eston.—Erection of 56 houses on Crossbeck estate, for UDC. S, N. C. Harrison: *G. Wimpey & Co., Ltd., Orchard House, Jesmond, Newcastle-on-Tyne.

Fifeshire.—Reconstruction, additions, etc., by their own architects to the Kirkcaldy YMCA buildings for Alexanders' Stores, Ltd., Bath-st., Glasgow, for new furniture and general warehouse. Quantity surveyors, James Gentiles & Sons, FFSI, 3, Hill-st., Westend, Edinburgh. Demolition, brick, building and allied works, *Alexander Fraser & Co., Ltd. Steel structural engineering and allied works, *Redpath, Brown & Co., Ltd., Wellington-chbrs., Waterloo-st., Glasgow. Joinery, carpentry, ironmongery and allied works, *Bogie & Nicol, Ltd., Dunkier-rd., Sinclairtown. Plaster, lathing and allied works, *J. F. Stobie & Co., Ltd. Plumbing, sanitary engineering and allied works, *Black & Sons, Ltd. Electrical fittings, installation and allied works, *J. Scott & Co., Ltd., 95, Campbell-st., Dunfermline.

Gateshead.—Erection of eight houses on Calderwood estate: GSW Urban Development Co., Ltd., 38, The Side, Newcastle-on-Tyne.

Glasgow.—Erection of 61 four-apartment houses and 207 three-apartment houses at the Castlemilk site (Unit 1). Architect, Archibald G. Jury, FRIBA, Housing Offices, Glasgow Cross, The Trongate, Glasgow: *L. H. Mackenzie & Ptnrs., Ltd., Parliamentary-rd., Glasgow.

Glasgow.—Erection of 42 houses at Mossfield-st., Springburn, six at Castle-st., Springburn, 27 at Wedderlee-dr., Cardonald, 30 at Fladden-ave., Knightswood, and 27 at Closeburn-st., Possilpark. Architect, Archibald G. Jury, FRIBA, Housing Offices, Glasgow Cross, The Trongate, Glasgow: *Glasgow Corp., Housing and Works Direct Labour Dept.

Glasgow.—Alterations and additions at Fitzroy-pl., Charing Cross. Architect, A. D. Holmes, ARIBA: *Stuart & Sons (Housing), Ltd., Glasgow.

Greenock.—Erection of new purifier works at the Gas Works, Port Glasgow-rd., Inchgreen. Engineer, Alexander Jamieson, MInstCE, Architectural and Managerial Offices, "Kessington House," Union-st., Westend, Greenock: *R. & J. Dempster, Ltd., Newton Heath, Manchester, Lancs, £25,000.

Gt Yarmouth CBC.—69 flats and maisonettes at Middlegate-st., No. 1 reconstruction area (phase 6), for BC. BE, H. F. Dyson, MBE, MIMunE; quantities by Davies Belfield & Everest: *H. A. Holmes & Sons, Ltd., South Ice House-hill, Gorleston-on-Sea, £91,934.

Hyde.—20 houses at Dukinfield-rd. site, for BC: *Vessey, Ltd., Marple Bridge.

Lanarkshire.—Erection of two schemes of houses at Westwood Site 11, and Mains Site 5, East Kilbride, for the Development Corp. Architect, Frank Scott, LRIBA, Torrence House, East Kilbride. 114 houses at Mains: *Holland & Hannen and Cubitts, Ltd., 123, St. Vincent-st., Glasgow. 116 houses at Westwood: *George Wilson (Stonehouse), Ltd., Townhead Contracting Works, Stonehouse.

Leeds.—Extensions to factory at Roseville-rd., for Jackson Associated Manufacturers, Ltd.: *W. T. Pearson, Ltd., Sheepscar Green, Leeds 7.

Liverpool.—14 houses at Moss Side Institution, for MOW: *Unit Construction Co., Ltd., Speke Boulevard, Liverpool.

¶London (Admiralty).—Contracts placed by Civil Engineer-in-Chief's Dept., Admiralty:—

Hants: Painting work, Maurice Hill, Ltd., Estate Office, Bedhampton, Havant, Hants; C. & T. Painters, Ltd., Mordaunt-rd., Harlesden, NW10. Building works, A. E. Farr, Station-rd., Westbury, Wilts. Civil engineering works, Wests Piling & Construction Co., Ltd., Columbia House, Aldwych, WC2. Asphalting, Highways Construction, Ltd., Iddlesleigh House, Caxton-st., SW1. Civil engineering, Jn. Croad, Ltd., Portland-st., Portsmouth. *Lancashire*: Resurfacing of roads and pathways, Penmaenmawr & Trinidad Lake Asphalt Co., Ltd., India Building, Water-st., Liverpool 2. *Pembroke*: Building works, Wilson Lovatt & Sons, Ltd., Clarence-st., Wolverhampton; Staverton Builders, Ltd., Totnes, Devon.

¶London (Air Ministry).—List of new works contracts to the value of £500 or over placed by Directorate of Contracts for week ended September 4:—

Building work: E. Bowman & Sons, Cherryholt-la., Stamford, Lincs; H. Holland, Ltd., 11, Falmouth-st., Newmarket, Suffolk; Kerridge (Cambridge), Ltd., Sturton-st., Cambridge; Farrans, Ltd., 17, Rothesay-pl., Edinburgh, 3; Woodcock Marshall & Co., Ltd., 2, Westbourne-gr. Mews, W11; Y. J. Lovell & Son, Ltd., 17, Easton-st., High Wycombe, Bucks. *Improvements to access tracks:* Holborow & Sons Ltd., Market-pl., Tetbury, Glos. *Heating and hot water services:* Kerridge (Cambridge), Ltd., Sturton-st., Cambridge. *General maintenance work:* F. & D Lucas, 147, Castle-st., Salisbury; J. Campbell Smith, Ltd., North Banks, Amble, Northumberland; F. Rendell & Sons, Ltd., 11-12, St. John-st., Devizes, Wilts. *Internal electrical wiring services:* Wm. Allan Smith & Co., Ltd., 47, Iona-st., Edinburgh, 6.

¶London (MOW).—Contracts placed by MOW for week ended August 28:—

Hampshire: War Dept. Camp, Barton Stacey, nr. Andover, erection of five houses, Thomas King & Sons (Bldrs.), Ltd., Abbotts Ann, Andover. *Lancashire:* M/L Medical Board Centre, Pownall-sq., Liverpool, alterations and adaptations, James Tomkinson & Co., Ltd., 22, Roscommon-st., Liverpool, 5.

Parcel Post Office, Hatton-gdns., Liverpool, external and internal decorations, R. Costain & Sons (Liverpool), Ltd., Blundellsands House, Mersey View, Waterloo, Liverpool, 22. General Register Office, Victoria Hotel, Nevill-st., Southport, internal decorations, Woolfall & Rimmer, Ltd., 71, London-st., Southport. *Staffordshire:* HO Police Training College, Swynnerton, external decorations, S. Peake & Son, Ltd., Welch-st., Stoke-on-Trent. PO, Beatty Hall, Yarnsfield, nr. Stone, external decorations, Battison & Bridgett, Ltd., Clayton-st., Longton, Stoke-on-Trent. *Yorkshire:* HPO, Aberdeen-walk, and TSO, Prospect-rd., Scarborough, adaptations to loading bay and yard area, Plaxtons (Scarborough), Ltd., Castle Works. Seamer-rd., Scarborough.

¶London (War Dept.).—Works contracts placed by War Dept. for week ended August 28:—

Cheshire: Building, A. Halliwell & Son (Chester), Ltd., Chester. *Monmouthshire*: Building, George Harris & Co., Hereford. *Worcestershire*: Parade ground, Espley & Co., Ltd., Evesham. *Wiltshire*: Painting, C. A. Hayes & Sons (Painting), Ltd., Bristol. *Hampshire*: Building, E. J. Logan (Putney), Ltd., London. *Oxfordshire*: Roadwork, General Asphalte Co., Ltd., London. *Wiltshire*: Building, J. T. Parsons & Son, Ltd., Westbury, Wiltshire. *Hampshire*: Painting, W. & R. Whittington, Southampton. *Devonshire*: Painting, T. H. Kenyon & Sons, Ltd., Exeter. *Berkshire*: Waterproofing huts, Bitumen Industries (Contractors), Ltd., Slough, Bucks. *Leicestershire*: Building, A. H. Taylor (Nottingham), Ltd., Attenborough. *Co. Durham*: Hot water, Hinscliff, Hewitt & Sons, Ltd., Durham. *Essex*: Sea wall repairs, George Wimpey & Co., Ltd., London. *Norfolk*: Concrete hardstanding, Kerridge (Cambridge), Ltd., Cambridge. *London*: Building, F. Troy & Co., Ltd., London. *Middlesex*: Roadwork, Road & Public Works, Ltd., London. *Sussex*: Roof insulation, Hall & Co., Ltd., Croydon.

Manchester.—Erection of a residential nursery at Longley-la., Northenden, for TC: *Moston Brick & Building Co., Ltd., Kenyon-la., Collyhurst, Manchester.

Musselburgh.—23 flatted houses at New-st./Bush-st. clearance areas, for TC. BS, Municipal Offices: *Crudens, Ltd., Olivebank, Musselburgh, Midlothian, £29,828.

Neston (Ches.).—Erection of factory for J. H. Leeman, Ltd.: *Lloyd & Cross, Ltd., Argyle-st., Birkenhead.

Newcastle-on-Tyne.—New licensed premises at Edgefield, for Vaux & Co., Ltd., brewers, Sunderland. Architect, M. McKenzie, 1, Eldon-sq., Newcastle-on-Tyne: *R. Costain (Builders), Ltd., Great North-rd., Newcastle.

Northumberland.—Erection of gram. sch. at Killingworth, for CC. Cty. A, Newcastle-on-Tyne: *A. Anderson, Ltd., Stanmore-rd., Newcastle-on-Tyne, £135,000.

Padiham.—Erection of 20 houses at Slade-la. estate, for UDC: *A. Spencer, 31, Bold-st., Accrington.

Renfrewshire.—Modernisation, reconstruction and additions to Johnstone's Gas Works restorts, for Scottish Gas Brd., Western area. Engineer, Alexander Jamieson, MInstCE, Architectural and Managerial Offices, "Kessington House," Union-st., Westend, Greenock: *Gas Works Improvement Co., Ltd., Aldwych, London, £62,550.

Scarborough.—16 aged persons' flats at Barrowcliff estate, for BC: *Mollekin Bros., West Parade, Scarborough, £12,832.

Sedgley.—75 houses at Gorge-rd., for UDC: *J. Ashmore (Builders), Ltd., Bromford-la., West Bromwich, £105,252.

Sheffield.—Erection of new workshops at Darnall-rd., for Hayden Nilos, Ltd.: *T. Holmes & Sons, Ltd., Bradway, Sheffield. 96 Gleeson/Belirock houses at Smelterwood site, Richmond, for TC: *M. J. Gleeson, Ltd., 822, Chesterfield-rd., Sheffield, £137,686.

South Shields.—Erection of shops, showrooms, etc., Prince Edward-rd., for Mr. J. Quigley. Architects, Turley & Williamson, 46, Jesmond-rd., Newcastle-on-Tyne: *J. R. Buckle, 209, Sutton Estate, Benwell, Newcastle-on-Tyne.

Stirlingshire.—Erection of 34 houses at Grangemouth-rd., Springkerso: *James Miller & Partners, Ltd., George-st., Edinburgh, £80,000.

Sunderland.—Erection of 38 houses at South Hylton, for RDC. Surveyor, C. Emmerson: *Direct labour, £52,021.

Widnes.—18 houses and four bungalows at Eric-st./Joseph-st. site, for TC: *H. Horridge & Co., Ltd., Wargrave-rd., Newton-le-Willows, £22,053.

BRITISH STANDARDS

The following British Standards have recently been issued by the British Standards Institution: BS 2490:1954, "Waterproof Drawing Inks"; BS 2503:1954, "Steel Windows for Agricultural Use"; BS 2504:1954, "Wood Doors and Frames for Milking Parlours"; BS 2505:1954, "Cowhouse Equipment." Copies of these British Standards may be obtained from the British Standards Institution, Sales Branch, 2, Park-street, London, W1.

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